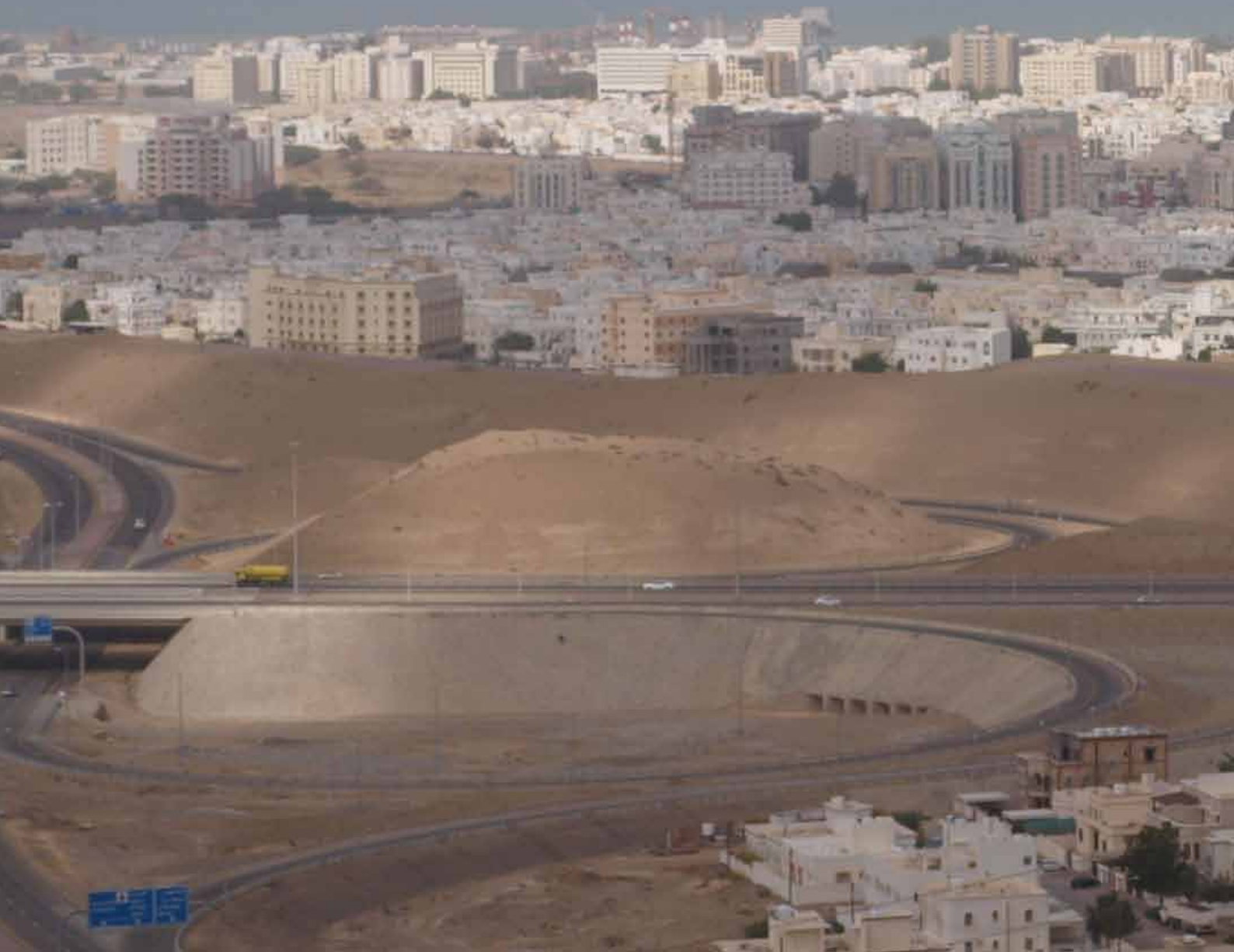


TRIALOG 114

A Journal for Planning
and Building in a
Global Context
Vol. 3/2013 - June 2015

**Oman -
Rapid Urbanisation**



Editorial

The Sultanate of Oman, located at the south-eastern tip of the Arab Peninsula, looks back on 45 years of development under the rulership of Sultan Qaboos, who took power in 1970. Remarkable progress has been made throughout the country in establishing a modern administrative body and in improving the road network, airports, harbours as well as the health infrastructure and educational facilities. Until the discovery of oil and gas resources, the country's economy was based on agriculture, fishery, and trade. Over the past four decades, a continuous process of urbanisation has been fostered by socio-economic transformation, dynamic population growth, and an increase of the foreign workforce. The authors of this issue are all scholars who have worked in and on Oman as university teachers and researchers. They touch upon the specific social, economic, and environmental topics of urbanisation in the country, as well as upon planning and urban design related aspects, focusing for the most part on the Muscat capital area. Typical cases studies from smaller, southern and northern towns of the country complement the current urban development trends portrayed in this TRIALOG issue.

A. von Richthofen and **S. Langer** focus on the growth patterns of the Muscat capital area using object-based image analysis. The OBIA-based maps allow systematic monitoring and qualified statements about the spatial development of the city between 1984 and 2014. Just like in the other Gulf states, urbanisation and internationalisation processes have led to specific forms in the production of space and society over the course of the last decades.

The paper by **V. Deffner** and **C. Pfaffenbach** examines the challenges posed and the chances offered by the coexistence of heterogeneous groups in Muscat, the capital of the Sultanate of Oman. In order to approach the questions of socio-spatial segmentation and integration, this paper analyses the political and institutional structures for labour migration to Oman and the urban spatial practices of the different socio-economic and socio-cultural groups in Muscat.

M. Bontenbal and **V. Deffner** address the relationship residents have with their neighbourhood, in the meaning of their sense of belonging and place attachment, using the example of a traditional neighbourhood area in Muscat comprised of the Bowsher villages. The findings are discussed against the background of the concepts of "belonging" and "place attachment".

The paper by **A. Kader** puts the typical suburban conditions of the Muscat capital area into focus. He presents the results of a design project on "Upgrading Residential Quarters" that takes the need for more environmentally friendly, mixed-use residential quarters into consideration and also aims to holistically integrate the climate and culture of Oman.

C. Hernández Galeano focuses on climate-sensitive urban design, responding to urban form and local culture in Oman. Using Muscat as a case study, she seeks to identify possible ways in which a new planning approach integrating climate criteria could address sustainability in extreme climate regions such as in Muscat and neighbouring places along the Gulf. Newly developed building design policies and technologies for net-zero-energy residential buildings in Oman are reviewed by **N. Knebel**. The ECO-House is presented and evaluated in regards to its importance for building eco-friendly and energy-efficient homes.

S. Wippel touches upon Salalah, the rapidly transforming second city of the Sultanate in the remote southern province of Dhofar. This article analyses the more recent urban and economic transformations of Salalah, which started in the late 1990s. It presents a current urban and economic evaluation, including of the latest globalisation trends in Salalah, in the context of national post-oil strategies and also studies the physical fragmentation of the urban landscape.

J. Salcedo Villanueva focuses on the city and Governorate of Al Buraimi, putting emphasis on water scarcity and the loss of agriculture as typical phenomena of transformation in more-rural areas. The study describes the shift from Omani traditional development and the former Al Buraimi agriculture-based economy to a modernisation period with noticeable benefits and consequences.

Das Sultanat Oman, an der südöstlichen Spitze der Arabischen Halbinsel gelegen, hat in den vergangenen 4 Jahrzehnten eine rasante Entwicklung erfahren. Mit der Machtübernahme durch Sultan Qaboos 1970 wurde ein systematischer Aufbau der Verwaltungsstrukturen, des Bildungs- und Gesundheitswesens eingeleitet und die Infrastruktur – Straßen, Häfen, Flughäfen – ausgebaut. Bis zur Entdeckung der Ölvorkommen in den späten 1960er Jahren waren Landwirtschaft, Fischfang und Handel die ökonomische Grundlage des Landes. Die vergangenen vier Jahrzehnte sind jedoch durch drastische sozio-ökonomische Transformation, durch dynamisches Bevölkerungswachstum, und durch eine zunehmende Anzahl ausländischer Arbeitskräfte gekennzeichnet. Allesamt Faktoren, die einen kontinuierlichen und anhaltenden Urbanisierungsprozess befördert haben. Die Autoren dieses Heftes sind Wissenschaftler, die lange Jahre in und über den Oman gearbeitet haben und behandeln sowohl soziale, als auch ökonomische und umweltrelevante Aspekte dieses Urbanisierungsprozesses ebenso wie Themen der Stadtplanung und des Städtebaus. Ein räumlicher Schwerpunkt liegt dabei auf dem Großraum der Hauptstadt Maskat. Ergänzend kommen zwei weitere Beiträge hinzu, die sich mit typischen Fragestellungen einer nördlichen Kleinstadt und einer südlichen Hafenstadt befassen.

A. von Richthofen und **S. Langer** zeichnen anhand von Satellitenbild-Analysen einen qualitativen Überblick über die räumlichen Wachstumsmuster des Großraums Maskats zwischen 1984 und 2014 nach. Die quantitative Auswertung dieser Karten unterstützt die Interpretation der Stadtgenese und erlaubt Ausblicke in die Zukunft.

V. Deffner und **C. Pfaffenbach** thematisieren Herausforderungen und Chancen der gesellschaftlichen Heterogenität in Maskat. Um der sozial-räumlichen Segmentierung und gesellschaftlichen Integrationsmöglichkeiten nachzugehen, werden die politischen Rahmenbedingungen für Arbeitsmigration nach Oman sowie die räumliche Praxis verschiedener sozioökonomischer und soziokultureller Gruppen in Maskat beleuchtet.

Der Beitrag von **M. Bontenbal** und **V. Deffner** beleuchtet die Raumverbundenheit bzw. das räumliche Zugehörigkeitsempfinden der omanischen Bewohnerinnen und Bewohner zu ihrem Wohnort. Vor dem Hintergrund des wachsenden Angebots moderner und größerer Häuser und Wohnungen in städtischen Neubaugebieten gewinnt die Frage, ob traditionellere Wohngebiete an Attraktivität für die einheimische Bevölkerung verlieren, zunehmend an Bedeutung für die städtische Planung sozial nachhaltiger Nachbarschaftsgebiete.

A. Kader erörtert anhand von beispielhaften Gestaltungskonzepten wie suburbane Stadtquartiere den Paradigmenwechsel zu einer nachhaltigeren und sozialeren Entwicklung vollziehen können. Mögliche Leitlinien für eine sozialgerechtere, nachhaltigere und klimaangepasste Stadt werden entwickelt und es werden Vorschläge dargelegt, wie die bestehenden Wohnquartiere im Oman entsprechend transformiert werden könnten.

C. Hernández Galeano behandelt die Bedeutung klima-gerechter Kriterien für eine nachhaltige städtebauliche Entwicklung und zeigt am Beispiel einzelner Siedlungen in Maskat konkrete Eingriffsebenen auf, wie sich neue Siedlungen klimaangemessen gestalten lassen.

N. Knebel stellt den Prozess der Planung und Realisierung eines Null-Energie Hauses dar, das aus einem Wettbewerb mit dem 1. Preis hervorgegangen ist. Der Entwurf beruht auf innovativen Prinzipien und Technologien, die hier beispielgebend angewandt wurden und Möglichkeiten für einen umweltgerechten und energieeffizienten Wohnungsbau in Oman zeigen.

S. Wippel wendet sich der südlichen Hafenstadt Salalah zu, deren Stadtlandschaft einem rasanten Wandel unterworfen ist. Mit verschiedenen Großprojekten wird die Stadt im Kontext nationaler Entwicklungsstrategien zunehmend vermarktet und räumlich fragmentiert. Das südarabische architektonische Erbe droht dabei zu verfallen.

J. Salcedo Villanueva untersucht typische Phänomene der Transformation einer nordomanischen Kleinstadt. Aufgrund zunehmender Wasserknappheit wandelt sich ein landwirtschaftlich geprägter Lebensraum in eine Urbanisierungszone mit eigener Charakteristik.

Oman – Rapid Urbanisation

Volume Editors: Sonja Nebel, Wolfgang Scholz

Inhaltsverzeichnis / Table of Contents

- 4 Evaluating the Urban Development and Determining the “Peak Space” of the Muscat Capital Area
Aurel von Richthofen, Sebastian Langer
- 9 Urban Spatial Practice of a Heterogeneous Immigration Society in Muscat, Oman
Veronika Deffner, Carmella Pfaffenbach
- 16 Place Attachment and Sense of Belonging in Oasis Villages in the Capital Area of Muscat
Marika Bontenbal, Veronika Deffner
- 21 Design Proposals for a More Sustainable Urban Development of Residential Quarters in Oman
Alexander Kader
- 27 Climate-Sensitive Urban Design, a Response to Urban Form and Local Culture
Carolina Hernández Galeano
- 32 Lessons from the GÜtech ECOHAUS. Outlook for Establishing Sustainable Building Practices in Oman
Nikolaus Knebel
- 36 Beyond the Gulf Metropolises. The Urban Transformation of Salalah in the Arising Post-Oil Era
Steffen Wippel
- 42 Reactivation of Inner Oman Oasis Settlements. Agriculture and Water Management as a Starting Point for Resilient Development in Al Buraimi
Jesús Salcedo Villanueva
- 48 Book Reviews / Neue Bücher
- 51 Dr. Bernd Ciecior (Bo Ciceron) 19.02.1945 – 30.04.2015
- 52 Forthcoming Events / Veranstaltungen

Evaluating the Urban Development and Determining the “Peak Space” of the Muscat Capital Area

Aurel von Richthofen, Sebastian Langer

Auswertung von Stadtentwicklungsparametern und Bestimmung des ‘peak space’ für Maskat

Die Hauptstadtregion von Maskat (MCA) hat sich seit der „omanischen Renaissance“ von 1970 rasant entwickelt. Mit einem besonderen Verfahren zur Auswertung von Satellitenbildern kann ihre bauliche Ausdehnung ab 1984 exakt nachvollzogen werden. Durch die Überlagerung von zwei Parametern lassen sich dabei auch Dichteentwicklungen beschreiben. Hoch aufgelöste Karten erlauben es, die städtischen Wachstumsmuster qualitativ zu interpretieren – mit Ausblicken in die Zukunft. Nach einer Expansion von ca. 1980 bis 2010 sind jetzt Anzeichen einer räumlichen Sättigung sichtbar. Räumliche Grenzen des Wachstums für die MCA werden mit dem neuen Konzept des ‘peak space’ (Gipfelpunkt der Raumentwicklung) ermittelt. Dieser Punkt sei bereits 2012 überschritten worden. Um eine dichtere Entwicklung des Stadtraums zu erreichen, wird vorgeschlagen, eine höhere Flächennutzung auf insgesamt kleineren Grundstücken zu erlauben statt weiterhin knappes Bauland zu vergeben.

Acknowledgement:

This article is based on research funded by The Research Council of Oman with the grant CBS-ORG-09-001.

Introduction

This paper presents a new method derived from Object-Based Image Analysis (OBIA) to generate spatio-temporal and density maps of urbanised areas in arid climates. The case study of the Muscat Capital Area (MCA) is particular interesting since the young development of the city coincides with the availability of LANDSAT satellite data, which dates back as far as 1984 for the area. Moreover, Oman offers a varied urban morphology that can be explained both geographically and historically (Al-Awadhi 2007), yet, in regard to the greater region of the MCA, it has never been examined. OBIA-derived maps allow, for the first time, qualified statements about the spatial development of the city. Analysing the regional urbanisation area, the concept of peak space is established as an indicator for exhaustive resource of land use and limit of urbanisation.

Monitoring urban development in the MCA

Urbanisation in Oman started in 1970 with the so-called Omani Renaissance, a process of economic development and demographic growth focussed in the capital city of Muscat. Within four decades, the MCA developed from small port towns and agricultural villages into an urban expanse housing more than one million people (Scholz 1978). While urbanisation processes were structured by various planning efforts (5-year development plans from 1975 onwards, structure plans from 1989-91, 2020 vision, etc.) and administrated by various governmental entities gradually established since the 1980s (The Supreme Council of Planning, Ministry of Housing, Muscat Municipality, etc.), the actual development of urbanisation has not been monitored systematically. Historians and urban geographers have, however, covered particular aspects

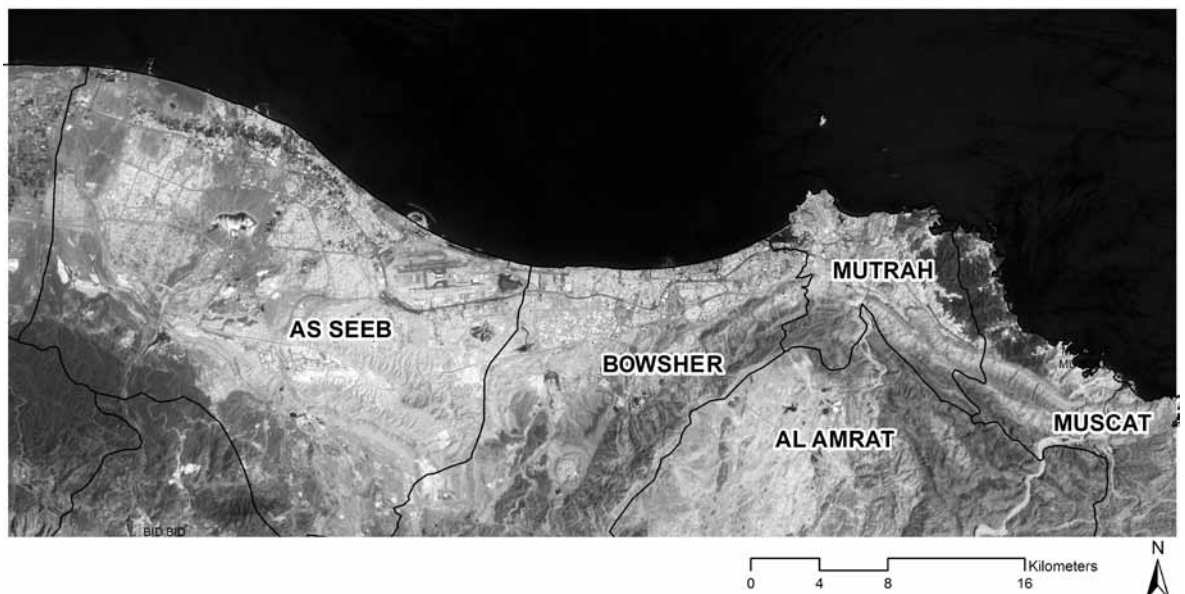


Figure 1: Image of the study area in 2014 with administrative boundaries (wilayah), (LANDSAT archive)

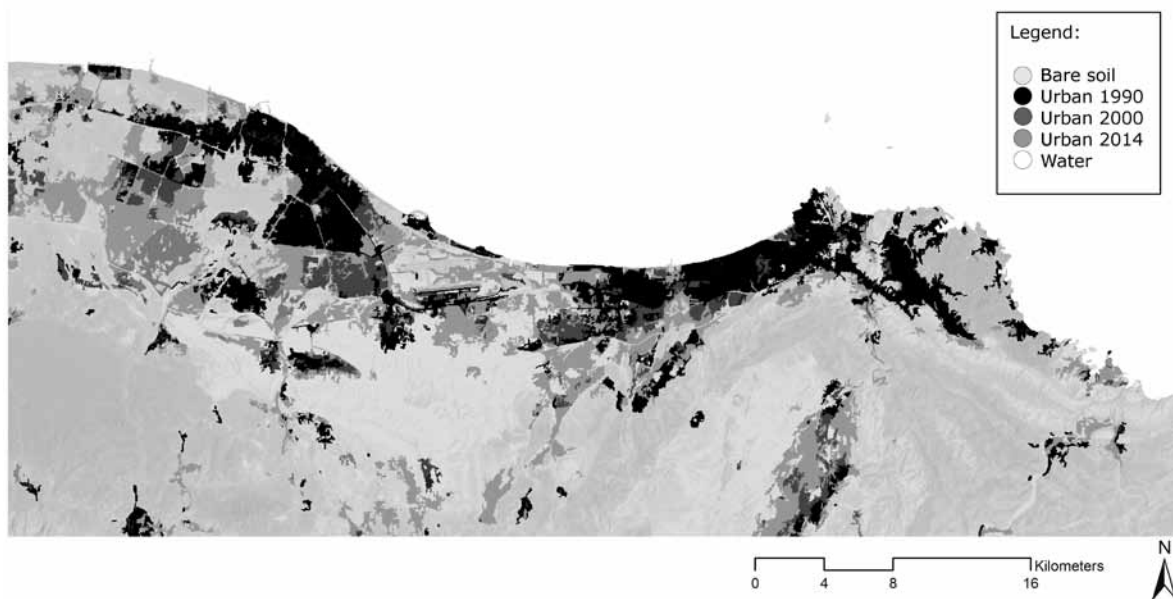


Figure 2: Spatio-temporal map of the urbanised regions (UR) of the MCA 1984-2014

of this development, such as tracing the disappearance of the old town and the changes in oasis settlements and agriculture. The work of Fred Scholz remains the benchmark for the earlier phase of urbanisation until 1990 (Scholz 1990). As he himself was retracing lost parts of the earliest phase of modernisation, from the 1970s to 80s, his laborious work was not continued into the next phase, which was marked by an ever-faster and intricate development starting in the 1990s. As a result, there is neither a quantifiable assessment of the historic and geographic development from 1970 to date, nor a base to derive the trends and limits of future urbanisation. In 2014, more than 85% of the Omani population was living in urbanised regions, primarily concentrated in the MCA.

The aim of this study is to create and analyse a set of spatio-temporal maps of the urbanised regions in the MCA (Bhatta 2010). LANDSAT imagery is freely available and covers the time period under scrutiny, as it reaches back to 1984.

The classification of satellite imagery is usually based on the reflection values of pixels. The different values in the respective bands can indicate specific land uses. Six bands were used in this project. OBIA segments and generates objects from groups of pixels based on parameters such as the homogeneity of spectral values, the shape of objects, the compactness, etc. (Rezaeian and Gruen 2011). Using OBIA methods, it is possible to detect larger houses and areas with a high density of built-up surface and combine them to larger objects by using the relative size of the area. A major challenge, given the desert environment of Muscat, was to find an accurate combination of reflective indices that can distinguish a dust-covered building from open soil.

The reflective evaluation starts with the latest image (2014). The subsequent classifications are, in turn, based on the results of the previous image, working back in time. The hypothesis is that there was no negative growth in the study area during the whole time period, and that we can start from the present to reconstruct the past (Al-Hathloul and Edadan 1993). This method improves the classification quality of older scenes since it excludes certain areas.

Since an urban area is not just buildings but also the space between those buildings, and due to the fact that not all buildings are detectable due to the resolution of the satellite imagery, a method that works with image-object rather than single pixels proved to be the most adequate. At this point it is important to say that this method cannot deliver exact, quantifiable results. However, the results are suitable for visual and qualitative interpretation, as well as relative comparison, since their inherent data structure is consistent. Moreover, the resulting maps have a resolution that historic diagrams could never achieve. To make assumptions about the robustness and the transferability of the method, further research in other study areas is planned. For this project, an accuracy assessment has been a challenge due to the lack of validated reference data. We compared the results to a dataset of manually delineated buildings of the study area. These buildings were traced manually by students of the German University of Technology (GUTech), with an overall accuracy of 70%, during a seminar held by the author.

Evaluating the urban development of the MCA

In order to evaluate the urban development from 1984 onwards, we established two spatial categories: Urbanised Regions (UR) at a larger scale encompassing buildings, roads and otherwise urbanised areas; and Built-up Areas (BU) at a smaller scale encompassing building footprints. We use UR to describe the planar expansion of the city, and the quotient of BU/UR to establish the local density within the city. The spatio-temporal evolution of the UR is described in figure 2. Figure 3 shows the local density of the MCA for 2014. Finally, the development of the UR is quantitatively described in figure 5 for each time frame, and in figure 6 for each "wilayah" (administrative division).

The spatio-temporal description necessitates a closer look at the various time stamps. It is understood that Muscat and the adjacent port towns, villages, and oasis settlements formed the core of the urban expansion after 1970 (Scholz 1990). While the twin cities of Muscat and Muttrah covered barely 10 km² intramural, more than 50 settlements can be counted on a Soviet army map based on Zenit satellite data from 1970 (Muscat, East Batinah Coast

Table 1: Urbanisation rates by wilayah and for the MCA, by the author

	Mutrah	Bowsher	As Seeb	Al Amrat	MCA
UR rate in 2014	77.7%	74.1%	49.6%	34.1%	53.5%
Date of reaching 50% UR rate	1984	1998	2014	ca. 2018	2012
Contribution to total area of the MCA	8%	21%	44%	27%	100%
Un-developable area of each <i>wilayah</i>	3/4	1/2	1/3	2/3	1/3
Contribution to overall UR rate of MCA 2014	4.7%	21.0%	57.0%	17.0%	100%
Annual growth rate 1984-2014	0.76%	1.53%	1.03%	0.93%	1.09%
Peak growth rate, decade	1.2%, 94-04	1.9%, 04-14	1.7%, 04-14	1.7%, 04-14	1.65%, 04-14

1970). By 1984, the UR accounted for 18.9% of the total land in the study area. The urban form can be described as patches with very loose edges — indicating continuous and rapid growth. The larger urban geometry follows the topographic constraints of the Indian Ocean in the north and mountain ranges in the south. This is also reflected in the city's infrastructure of highways and the airport, which run parallel to the coastline and the mountains.

By 1991, the UR of the MCA had grown to 25.6%. Fjord-like fringes in the east indicate that the city literally washed upon the steep mountains slopes, reaching a maximum in this area. Development in the west of the MCA was mostly around the old port towns and oasis settlements. We see stagnation in urban expansion during the 1990s, due to the slow implementation of the first Regional Structure Plan in 1991 by Weidleplan and an economic downturn during the aftermath of an oil-price drop in 1986 (The History of Oil & Gas Sector in Oman 2014). Back then, as today, Oman was largely dependent on income generated from oil exports to finance its public infrastructure (Al Gharibi 2010).

By 2002, the UR covers 33.7%. For the first time, both centres described by Weidleplan in the east and west merge into one expansion area. Close examination reveals that density was much lower in the newly developed sectors than in the older parts in the east. Finally, the UR reached 53.2% in 2014, representing more than half of the urbanised MCA. Urbanisation has become more asymmetric, with eastern wilayahs stagnating. The costs of urbanisation are exploding alongside the expanses of area requiring by roads, electricity, water and sewerage. An

extrapolation of the urbanisation trend indicates that the MCA will reach its limits, with 80% urbanisation of its developable land and an estimated population of 4.5 million inhabitants, by 2030.

The four wilayahs of the MCA examined here differ in size. Some areas are un-developable due to their topography. Hence, the contribution of each district towards the overall urban expansion differs significantly, as can be seen in the table below. Crossing of 50% UR is a significant threshold for urbanising areas. This event occurred at different moments for each wilayah, reflecting the urbanisation trend from Mutrah to Seeb along the Batinah coast. The overall urbanisation of the MCA crossed the 50% line in 2012. The average annual growth rates per wilayah range between 0.76% and 1.53%, with peak growth rates of 1.9% in the last decade indicating an accelerated, consistently high urban growth. There is hardly any space left to expand in Mutrah and Bowsher. Al Amrat will not be able to accommodate many new houses in the future either, due to its terrain. As Seeb stands out as the area with the largest land reserve, yet it is located on the western side of the MCA, bordering the Al Batinah coastal plain. The continuation of urbanisation along the coast is anticipated outside of the MCA in Barka and Sohar, further north-west.

Urban density maps for the MCA

The density maps measured by quotient of BU/UR indicate the density of the urban expansion and qualify Muscat's urban sprawl. It is important to note that these density maps measure only 2D information and do not

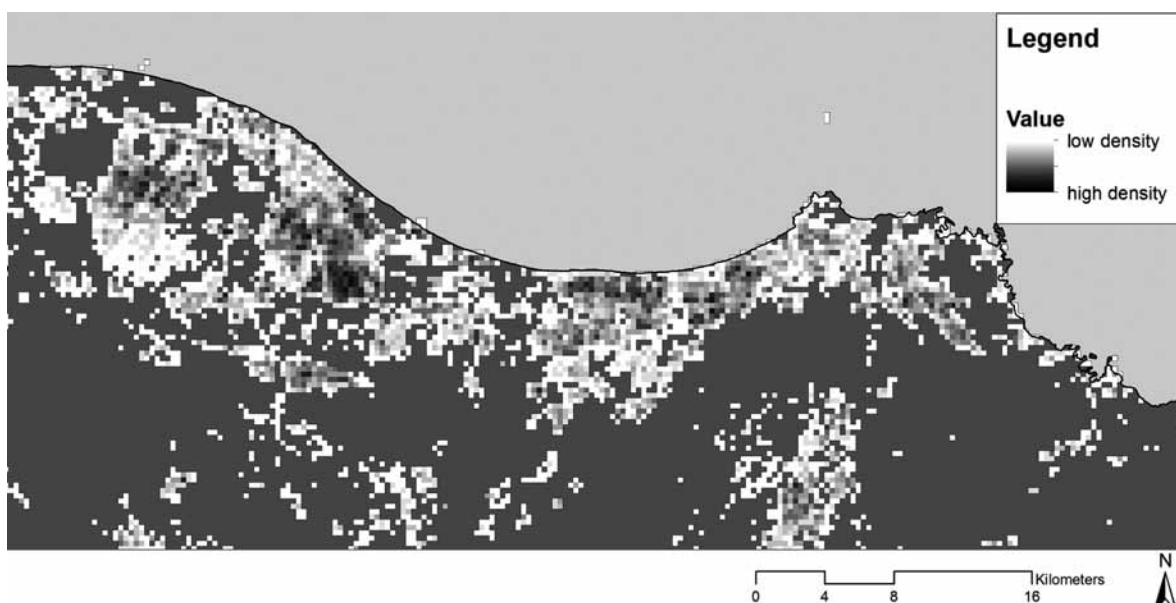


Figure 3: Density map of the MCA, 2014

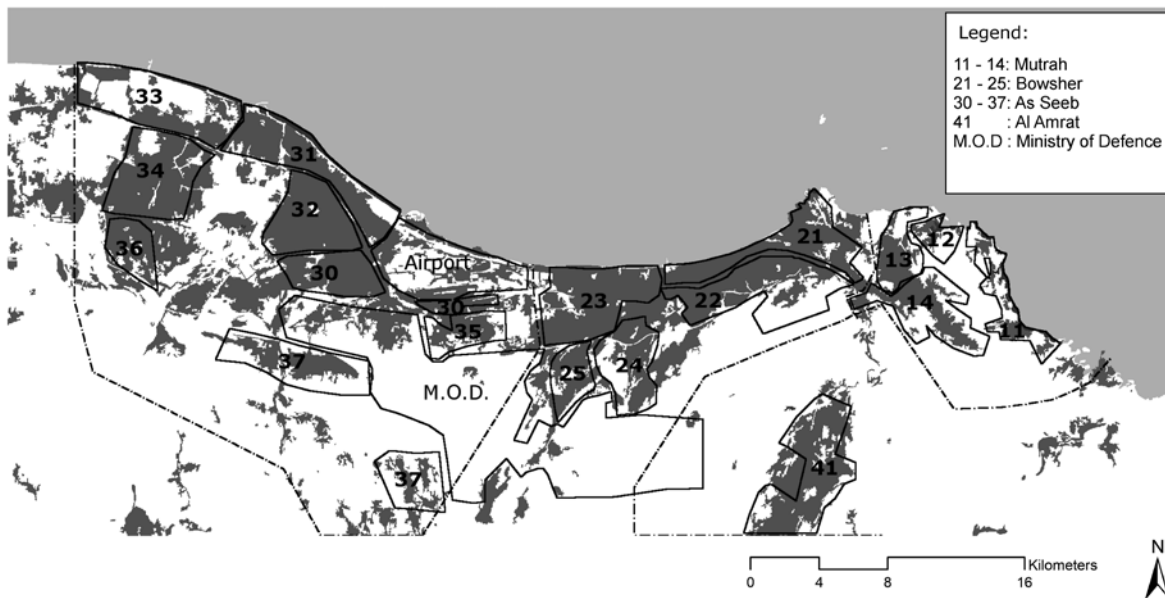


Figure 4: Weidleplan Structure Plan of projected land use in 2010 over actual land use derived from OBIA 2014

contain information on floor areas commonly used to determine Floor-Area Ratios (FAR) — also known as architectural density. Our 2D density can also be correlated to social, economic, ecological or political sustainability (Bontenbal and van Esch 2012).

Density is an additional qualification parameter of urban-expansion phenomena. A denser settlement is related to more-efficient land use and the provision of infrastructure resources. The acceleration (change in time) of densification is an indicator of the efficiency of the urbanisation process altogether.

The patterns visible in the density maps can be split in two phases: the first phase, from the 1980s to the end of the 1990s, is characterised by dense and radiating coastal nuclei; the second phase, initiated in the early 2000s, shows that newer settlements appear in the west and south as well as around the prevailing coastal nuclei. By 2014, these form denser islands in a territory undergoing massive urbanisation. This densification phase is characterised by urban expansion at the district scale. The UR reached a different scale and speed at the expense of land use and infrastructure demand. The western area alone measures 25 km in diameter and has a low average land occupation.

The urban expansion and density maps can be compared to the stated aims of the Weidleplan Structure Plan. The planners recommended, in 1991, that “the [...] ‘twin-city approach’ to the growth of the Muscat Area [shall be] the basic concept for the three strategies laid down in the regional plan” (Weidleplan 1991). This “twin-city approach” intended for the equal expansion of greater Mutrah in the east and As Seeb in the west. The rationale behind this strategy was to control urban development in the already-developed sectors in the east, and to keep land reserves between the eastern and western sectors. The plan also recommended a phasing of sectorial development according to a cost/efficiency calculation. A mix of governmental incentives, such as land allocation to citizens and relocation of governmental bodies as well as restrictions on land development in other areas, was seen as sufficient mechanisms. Limiting urban development in central areas did not take into account that these areas belonged to influential tribes and also proved very

lucrative to develop. The “concentration” of infrastructure investments in remote areas proved expensive and slow. To date, the massive land allocation in the western areas on virtually desert ground has not been matched by the provision of working spaces and commercial and social facilities. Today, these areas form extensive, desolate suburbs. Weidleplan’s desire to create a synthetic solution for the MCA stands out as a major component and weakness of the plan at the same time. The reality of dynamic urban growth, uncoordinated development, and conflicting interests has rendered a “fixed” structure plan like that of Weidleplan redundant. Moreover, the Weidleplan framework can be read as a blueprint for land speculation and expensive infrastructure construction, the exact opposite of the intended resourceful urban development. The plan’s time horizon of 20 years, until 2010, is a further weakness, at least since it was never updated or adjusted. The plan does not investigate the limits of spatial growth, nor offer a strategy on how to address the depleting spatial resources of the MCA.

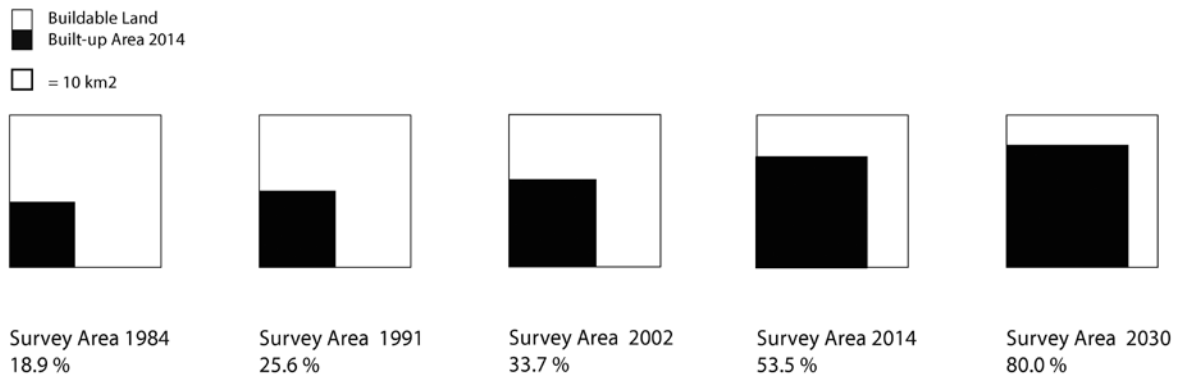
Assessing “peak space” for the Muscat Capital Area

We propose to evaluate spatial expansion with constraining factors in order to establish the limits of the MCA’s growth. Natural features — in particular the topography, coastline, and wadis — posed constraints to the form and speed of urbanisation early on. As a result, the “natural” imprint of the maximum urbanisation forms a specific urbanisation basin, one that is fragmented and fjord-like in the east and that gradually washes into the gravel plains of the west. Urbanisation also depends on the development of man-made infrastructure such as roads, retention dams, ports, airports, desalination plants, etc. to connect the fragmented urbanisation basins of the MCA (Diener, Meili, and Jovanovic 2013). This infrastructure acts as a development corridor for urbanisation, one with a certain impact radius. The radius of impact changes over time. Until the 1990s, urbanised areas affected adjacent areas within a radius of less than 5 km. Since the 2000s, this radius has expanded to 25 km, as measured in figure 2, and with it the time spent in traffic by Muscat’s citizens as well. Urbanisation also has social limits, if certain parts become inaccessible and segregated by the urban morphology. The correlation of urbanised land to census data

References

- Al Said, Fahad A., Slim Zekri, Iqar A. Khan, and others (2007). “Profitability Analysis of Selected Farms in the Batinah Region of Oman”. In: *Agricultural and Marine Sciences*/12, p. 1-12, Oman.
- Al-Hathloul, Saleh, and Narayanan Edadan. 1993. “Evolution of Settlement Pattern in Saudi Arabia.” *Habitat International* 17 (4): 31–46. doi:10.1016/0197-3975(93)90027-A.
- Berghauer Pont, Meta Yolanda, and Per André Haupt (2009) *Space, Density and Urban Form*
- Rezaeian, Mehdi, Gruen, Armin (2011) *Image-Based Recognition and Classification of Damaged Buildings Using Bayesian Networks*. Antalya, Turkey. Available at: <http://www.isprs.org/proceedings/2011/GI4DM/PDF/OP75.pdf>
- Scholz, Fred (1978) *Sultanate of Oman: aerial photographic atlas: natural regions and living areas in text and photographs*. Stuttgart: Ernst Klett
- “USGS (2012): USGS - Fact sheet 2012-3072 - Landsat - A Global Land-Imaging Mission
- Weidleplan. 1991. *Muscat Area Structure Plan Phase 3 Final Report*.
- Wiedmann, Florian. 2010. “Post-Oil Urbanism in the Gulf Case Study: Kingdom of Bahrain.”

Figure 5: Built-up area in the MCA, 1984-2014



shows that demographic pressure is a main driver of urbanisation. While the population is still rising, the amount of space is gradually decreasing, and the urbanisation curve of the MCA will reach a saturation level of 80% within the near future. Furthermore, the ecological footprint in Oman is growing rapidly. The per capita consumption of electricity in Oman shows that the Omani population, and the inhabitants of the MCA in particular, use resources excessively. In other words, a sustainable urban expansion needs to take ecological considerations more seriously. The concept of peak oil (Hubbert 1949, Wiedmann 2010) describes the production of a finite resource under market mechanisms. It is helpful to analyse the pivotal moment (peak) in the consumption of resources, and to determine the speed (saturation) of the depletion of this resource. The transfer of this concept onto space is based on the following assumption: while land is finite in its expansion on the surface of the globe, it can be used both simultaneously for various purposes and successively in time and therefore cannot qualify as truly exhaustible. Nonetheless, the transformation of open land into urban space usually goes hand-in-hand with a heavy financial investment and altered soil composition, and materialises in the form of buildings and infrastructures that are resistant to change. Therefore, the production of urban space is an irreversible process and depletes open land resources. While the FAR can be increased locally on a given plot by architectural additions, changing the overall FAR in a built urban fabric is very difficult. It is assumed that urban space in function of density engrained in the urban development strategy is also finite. In Oman, barely 3% of the nation's land can be used for agriculture, which co-relates to the space available for sustainable urbanisation (Al Said et al. 2007). The concept of peak space takes

the variability of the overall spatial resource into account as new technologies and energetic expenses change. The natural and man-made constraints can be drawn on the physical map of the MCA and overlapped with the derived UR. Figures 5 and 6 record the development of the BU from 1984 to 2014 in the study area. In projection of this trend, 80% of the available land will be used up by 2030, representing a level of saturation that makes further development of urban space very costly. Since Muscat is the capital of Oman, economic and demographic development is likely to continue beyond 2030. The effort to create and develop secondary cities further south and inland will offer no relief from running out of space in the MCA. The establishment of the peak-space moment can help the public sector to orchestrate all present and future efforts in light of depleting spatial resources. Currently, the provision of infrastructure and buildable land are not synchronised, as figure 2 underscores. As a starting point, the allocation of buildable land could be changed towards the allocation of residential space. The present FAR for residential plots is very low, as a result of free-standing villas. The density calculated for the urban expanse is even lower. The same amount of residential space could be allocated on much smaller plots. Re-densification will require changes in the physical planning standard and zoning of the MCA. Furthermore, adaptation of the building code is necessary to account for alternative building typologies. All these changes, including new forms of financing and taxation, will require public debate. The public and media in Oman need to discuss a common approach to less land-consuming forms of urbanisation. It is crucial for the public to understand that land is a precious and scarce commodity, albeit the free governmental land allocation.

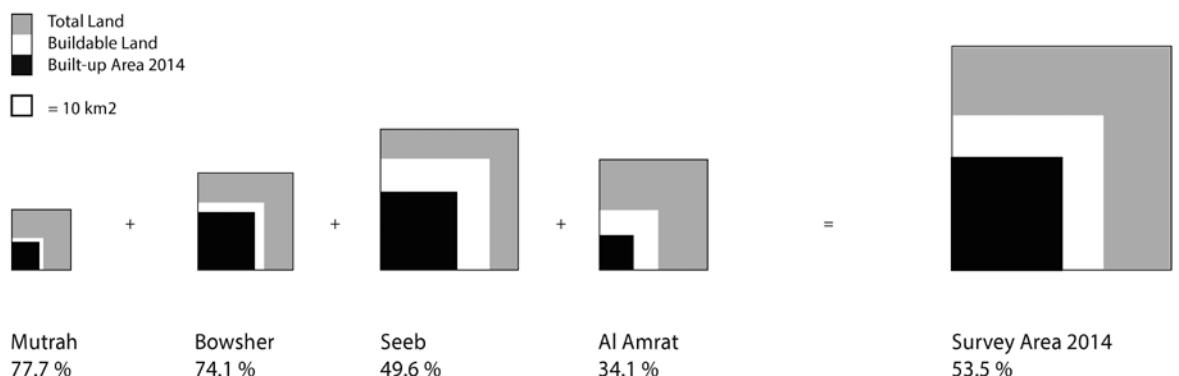
Figure 6: Built-up area per wilayah in the MCA, 2014

Aurel von Richthofen

is an architect and researcher at the Future Cities Laboratory in Singapore (FCL) affiliated to ETH Zurich where he leads a research module developing sustainable building materials and researches on sustainable urbanisation in emerging societies. Prior to Singapore, Aurel spent four years teaching architecture at the German University of Technology in Oman (GUtech). During this time he was co-investigator on a research project on sustainable urbanisation patterns in Oman - sponsored by the Research Council Oman. Contact: <vonrichthofen@arch.ethz.ch>

Sebastian Langer

is currently MSc Candidate for Applied Geoinformatics at the Department of Geoinformatics "Z-GIS" at Paris Lodron University of Salzburg. During his studies he did a 5 months internship at the German University of Technology in Oman (GUtech) at the Department of Sustainable Tourism and Regional Development. A focus on OBIA-methods and the experiences in Oman were the main motivators for this work. Contact: <sebastian.langer@stud.sbg.ac.at>



Urban Spatial Practice of a Heterogeneous Immigration Society in Muscat, Oman

Veronika Deffner, Carmella Pfaffenbach

Städtische Raumnutzung in der heterogenen Einwanderungsgesellschaft von Maskat, Oman

In diesem Beitrag werden die Herausforderungen und Chancen der gesellschaftlichen Heterogenität in Maskat, der Hauptstadt des Sultanats von Oman, diskutiert. Wie in anderen Golfstaaten haben auch hier Urbanisierungs- und Internationalisierungsprozesse in den vergangenen Jahrzehnten zu spezifischen Formen der Gesellschafts- und Raumproduktion geführt. Um der Frage der sozialräumlichen Segmentierung und gesellschaftlichen Integrationsmöglichkeiten nachzugehen, werden im Folgenden die politischen Rahmenbedingungen für Arbeitsmigration nach Oman sowie die räumliche Praxis verschiedener sozioökonomischer und soziokultureller Gruppen in Maskat beleuchtet.

Modernisation, urbanisation and international migration

Since the oil sector began to grow and develop in 1967 and with the coming to power of Sultan Qaboos bin Said al Said in 1970, Oman has experienced an era of intensive and rapid modernisation with the Capital Area of Muscat and its surrounding region undergoing an almost unprecedented process of urbanisation (see Nebel 2014; Peterson 2004; Pradhan 2013; Valeri 2009). The city is the country's most important economic hub and has the highest demand for an urban labour force. Therefore, the majority of foreigners are concentrated in the Capital Area of Muscat, with 42% of all non-Omanis in the Sultanate currently living in Muscat (see NCSI 2014).

The following paper aims to analyse the spatial and social consequences of the coexistence of heterogeneous groups with regard to nationality and socioeconomic position in Muscat. Against the backdrop of the political and institutional structures in place governing labour migration into the Sultanate of Oman, including the endeavours and challenges of Omanisation, we will also attempt to shed light on the different spatial practices and opportunities for transnational migrants in Muscat. Building on this, we will discuss how the urban society is created by making reference to socio-spatial structures and migrant-worker integration. The paper closes by tackling the questions as to if, and in which segments of the society, integration is possible.

The topics presented here are part of a broader research project conducted using a qualitative approach. The results were attained from more than 100 interviews with migrant workers and expatriates from India, Sri Lanka, Egypt, UK, the Netherlands and Germany as well as with representatives of the respective national communities

such as ambassadors, directors of social clubs and international schools, etc.

Political and institutional context for migration to Oman

Internationalisation of the labour market and heterogeneity of the immigrant community of Muscat

The strong pull that the Sultanate of Oman exerts on migrants from many parts of the world can be attributed to the fact that migrants can expect better pay, a higher quality of life, and better chances of advancement in Oman than in their home countries (see Borjas 1989, Kapiszewski 2006, United Nation Expert Group 2006). The proximity of Southeast Asian home countries to Oman plays an additional role, as migration costs are thus lower and even poorer families can also afford to send relatives abroad and benefit from remittances.

In 2012, according to data from Oman's National Centre for Statistics and Information (NCSI 2013: 7), 88% of the labour force in the private sector was made up of foreign workers and only 12% of Omanis. The public sector is the only sector that is by and large in the hands of Omanis, who account for 86% of the employees (see Table 1).

The largest of the different nationalities amongst the foreign workforce in the private sector are Indian nationals, who make up approx. 43% of the migrant workers. This is primarily deemed to be a result of the long history of trade relations between Oman and India. Migrant workers from Bangladesh (approx. 30%), Pakistan (approx. 15%), the Philippines (approx. 2%) and Egypt (approx. 1%) account for smaller proportions. Western foreign labour is not reported separately, but included in the category "other nationalities" (approx. 8%) (NCSI 2013: 13).

References

- Al-Lamki, S. (2000) "Omanization: A Three Tier Strategic Framework for Human Resource Management and Training in the Sultanate of Oman". In: Journal of Comparative International Management, vol. 3, no. 1.
- Bajracharya, R. and B. Sijapati (2012) "The Kafala System and Its Implications for Nepali Domestic Workers". In: Policy Brief, 1. Centre for the Study of Labour and Mobility, p. 1-16. New York.
- Borjas, G. J. (1989) "Economic Theory and International Migration". In: International Migration Review/23, p. 457-485.
- Das, K. C. and N. Gokhale (2010): Omanization Policy and International Migration in Oman. Middle East Institute. Washington. <http://www.mei.edu/content/omanisation-policy-and-international-migration-oman> [26.3.2014]
- Deffner, V. (2014) "The Indian Diaspora in Muscat". In: Rajan, S. I. (ed.) India Migration Report 2013: Diaspora and Development, p. 181-192. London/ New York/ New Delhi: Routledge.
- Deffner, V. and C. Pfaffenbach (2013) "Integration auf Zeit für ein Leben in Transition: Gesellschaftlicher und politischer Umgang mit den Herausforderungen einer segmentierten städtischen Migrationsgesellschaft in Muscat (Oman)". In: Raumforschung und Raumordnung, 71(3) p. 233-245.
- Esser, H. (2003) "Ist das Konzept der Assimilation überholt?" In: Geographische Revue 2(5), p. 5-22.

	Private Sector		Public Sector		Total	
Omanis	172,066	12%	166,804	86%	338,870	20%
Expatriates	1,316,182	88%	27,522	14%	1,343,704	80%
Total	1,488,248	100%	194,326	100%	1,682,574	100%

Table 1: Employees by economic sectors in the Sultanate of Oman 2012 (Source: NCSI 2013: 7; own calculations)

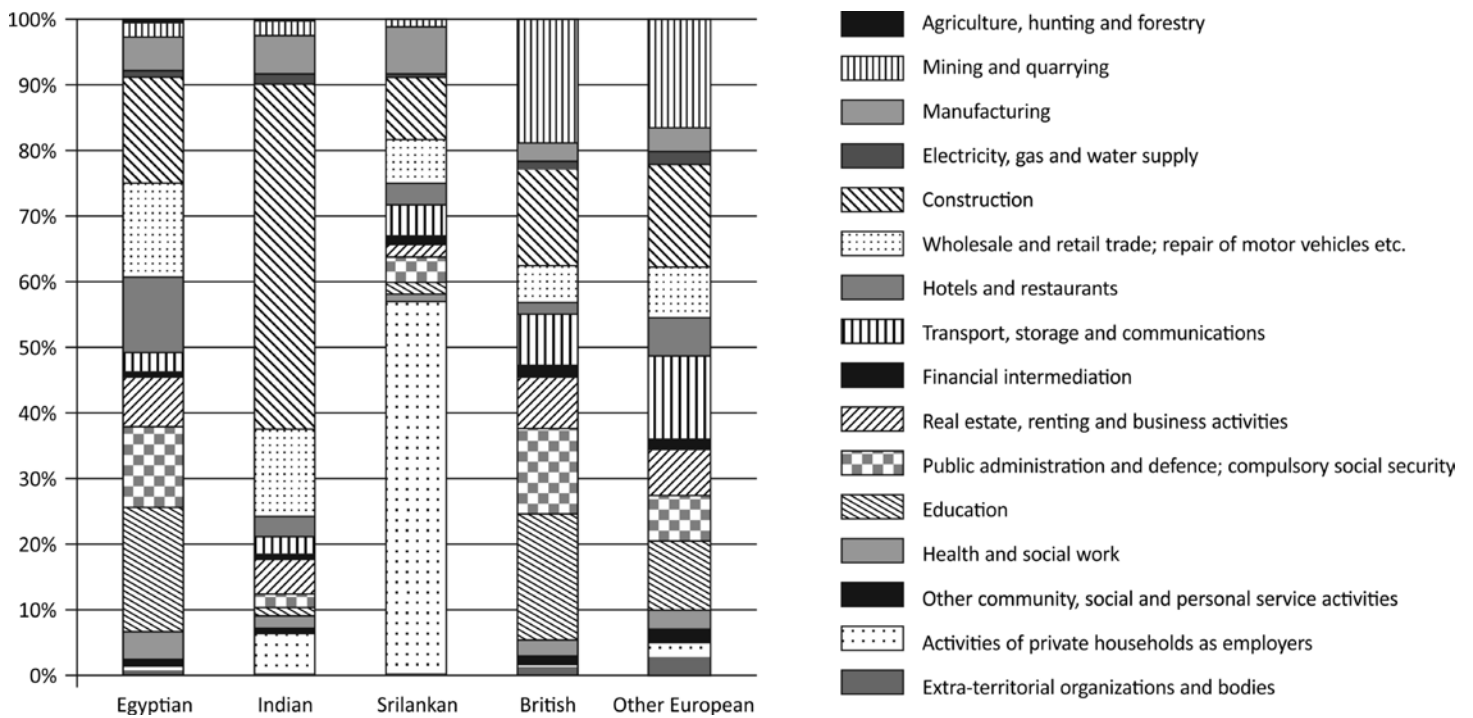


Figure 1: Economic activity of selected nationalities in Muscat. (Source: Special calculations of census data 2010 by the Ministry of National Economy; own calculations)

As is true for all GCC States, the Omani labour market is not a free labour market, but instead pursues a policy of targeted workforce recruitment and is characterised by a strong structural dependency of employees on their employers (sponsor or *kafil*), which is often referred to the traditional *kafala* system. Sponsors are legally and economically responsible for their employees. They register the contractual relationship to the Ministry of Social Affairs and Labour, and apply to the Department of Immigration for a working visa and residence permit.

This contractual and personal bond to the sponsor has particularly grave consequences for contract and domestic workers (see Bajracharya/Sijapati 2012). Not only do they work long hours for marginal wages, but they are also entirely beholden to their employer, with their personal freedoms and mobility being severely restricted by being required to surrender their identity and residence documents (passport and visa) when the employment relationship commences.

As a consequence, it is not only very difficult or even impossible for employees to terminate their employment in the event of a violation of their labour and migrant rights, but even to look for another job or to return to their home country. Employees dismissed by their employer immediately find themselves being sent back to their home country or having to assume an illegal status. The discrepancy between the obligations of employees and the services and remuneration provided to them by their employers has also been sharply criticised by the ILO (see ITUC 2008).

Today's labour market in the Sultanate is decisively hierarchical and distinctly segmented. At the apex are a small number of "Western" experts, who earn the highest salaries and enjoy the greatest privileges. They are followed by indigenous workers, by migrant workers from Arab countries and, finally, by Asian migrants. Figure 1 illustrates that the majority of workers from Southeast Asian countries are employed in the construction industry, in

manual-labour jobs, and as domestic workers, whereas Egyptian and British workers are employed in large numbers in the education and public administration sectors. Exceptionally large numbers of Western specialists are employed in "mining and quarrying", i.e. they work for the national and international oil and gas companies.

The hierarchical and segmented labour market is reflected in the segmented urban immigrant society. When taking a closer look at how the population statistics have changed over the years, it quickly becomes clear that the Capital Area of Muscat has developed into an urban centre that is culturally very heterogeneous: in 1970, the greater capital area had approx. 50,000 inhabitants; in 1980, it had grown to approx. 226,000 inhabitants, amongst them 108,000 non-Omanis (Scholz 1990: 162); and in 2010, according to the latest census data, 776,000 people lived there, of whom 48% were foreigners (NCSI 2014: 7f).

Throughout the whole country the number of expatriates has continuously grown since the mid-1970s, and today, according to the National Centre for Statistics and Information, 1.7 million foreigners live in the Sultanate, which is equivalent to 44% of the overall population (3.9 million inhabitants). These figures illustrate a very dynamic growth of foreigners living and working in Oman, and a disproportional concentration in the Capital Area of Muscat, where 61% of the population (or 704,000 of 1.2 million inhabitants in total) consists of expatriates. Figure 2 illustrates that the rate of social heterogeneity is especially high in the provinces Mutrah/Muscat and Bawshar, where the share of non-Omanis in 2013 reached approx. 80% (NCSI 2014: 7f).

Despite the rapid pace of urban growth and the cultural and ethnical heterogeneity of the population in the Capital Area of Muscat, the city has seen neither precarious or infrastructurally deprived neighbourhoods develop, nor marginalised or socially discriminated quarters. All in all, there are only few signs of either disintegration or a concentration of the various transnational communities in the

References (cont.)

- Esser, H. (2008) "Does the 'New' Immigration Require a 'New' Theory of Intergenerational Integration?" In: Brettell, C. B. and J. F. Hollifield (eds.) *Migration Theory, Talking Across Disciplines*, p. 308-341. New York: Routledge
- Girgis, M. (2002) "Will Nationals and Asians Replace Arab Workers in the GCC?" Egyptian Center for Economic Studies, Working Paper No. 74.
- Glick Schiller, N. and A. Çağlar (2009) "Towards a Comparative Theory of Locality in Migration Studies: Migrant Incorporation and City Scale". In: *Journal of Ethnic and Migration Studies* 35(2), p. 177-202.
- Goebel, D. and L. Pries (2003) "Transnationale Migration und die Inkorporation von Migranten. Einige konzeptionell theoretische Überlegungen zu einem erweiterten Verständnis gegenwärtiger Inkorporationsprozesse von Migranten". In: Swiaczny, F. and S. Haug (eds.) *Migration-Integration-Minderheiten. Neuere interdisziplinäre Forschungsergebnisse*. BIB: Materialien zur Bevölkerungswissenschaft 107, p. 35-48.
- ILO (International Labour Organisation) (2009) *International Labour Migration and Employment in the Arab Region: Origins, Consequences and the Way Forward*. Genf

sense of segregation tendencies; this will be discussed in more detail later.

Omanisation

The rising proportion of non-Omani employees in the private sector — in 1985, they accounted for 52% of private sector employees and, in 1995, for 64% (see United Nation Expert Group 2006: 16) — prompted an intensification of the policy of the so-called Omanisation of the labour market and the national economy, as it was initially formulated in the National Development Plan in 1988 (see Al-Lamki 2000).

Especially in the private sector, efforts at nationalising the workforce appear to be failing in spite of the introduction of quotas in twelve economic sectors ranging from, e.g., 20% in wholesale to 60% in transport and communication and up to 100% in jobs such as department managers, TV cameramen, accounts clerks, or newspaper vendors (see Randeree 2012; Das/Gokhale 2010).

The most attractive jobs for Omani employees are considered to be in the telecommunication sector, in travel and tourism, as well as in the banking, finance, and real estate sectors. In these areas, Omanisation has reached around 90% in operating, marketing, sales, supervisory, or other representative management positions. Other sectors, which are more difficult to nationalise, include the oil and gas sector, where the achieved quota was only 30% in 2010, or the schooling and educational sector, with around 15% (Ministry of Manpower 2014).

The fact should, however, not be overlooked that a large number of jobs in the private sector are located at the bottom end of the skills ladder, and that the pay and

working conditions are unattractive or just simply unacceptable for Omanis (see Girgis 2002). Consequently, the “Arab Spring” protests in 2011 in Oman also addressed unemployment and unsatisfactory employment and income opportunities for Omanis in the private sector. In response, the government introduced a minimum wage and a 45-hour working week designed to make the booming sectors more attractive to the indigenous workforce. The further growth in the expatriate’s share of the private-sector workforce in 2011 and 2012 could be behind the renewed increase of the minimum wage in July 2013 (see al-Shaibany 2013).

Figure 3 illustrates the continuing high dependence on international expertise and technically-skilled employees who possess tertiary educational degrees or secondary education and have enjoyed specific vocational training. The most obvious discrepancy in terms of education levels exists between Omani nationals on the one hand, and Egyptian or “Western” nationals on the other.

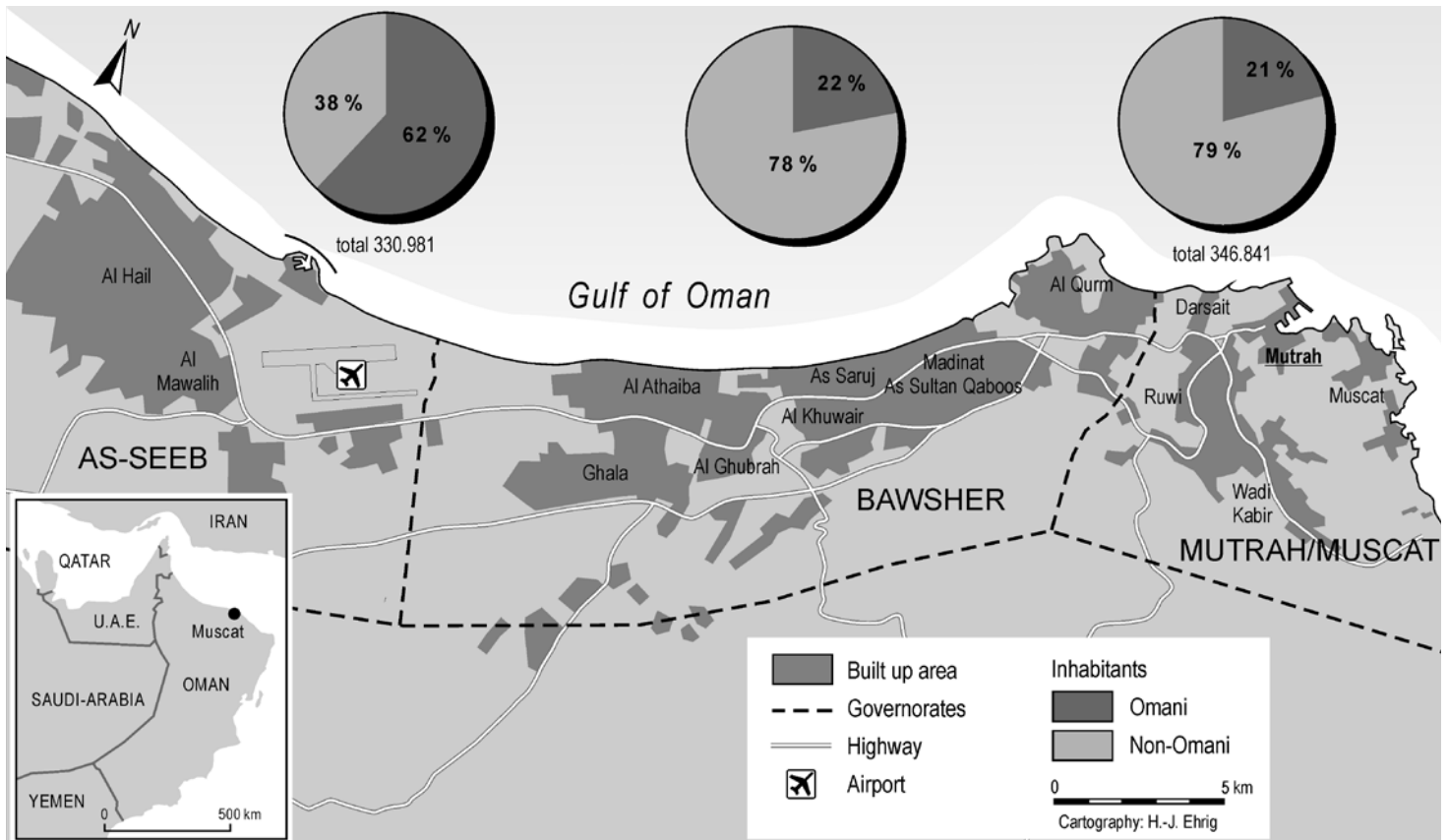
The reservation must, however, be mentioned at this juncture, that the age structure of the selected nationalities is very different and demonstrates a significant influence on the level of education: while a large proportion of the on-average very young Omani population is still in education and training, the overriding majority of the expatriate community are of working age and have therefore already completed their education and training.

In addition to this, reference may also be made to the fact that very significant differences exist with respect to the numbers of the different nationalities illustrated in figure 3 (Omani: n=313,089; Indian: n= 221,214; Egyptian: n=7,934; Sri Lankan: n=5,921; British: n=2,968; other European: n=3,113).

References (cont.)

- ITUC (2008) Internationally-Recognised Core Labour Standards in the Sultanate of Oman. Report for the WTO General Council Review of Trade Policies of the Sultanate of Oman. Geneva, 25-27 June 2008. http://www.ituc-csi.org/IMG/pdf/TPR_Oman_Final.pdf [14.11.2014].
- Kapiszewski, A. (2006) Arab versus Asian Migrant Workers in the GCC Countries. UN Expert Group Meeting May 15-17 2006. Beirut. http://www.un.org/esa/population/meetings/EGM_Ilttmig_Arab/P02_Kapiszewski.pdf [14.11.2014].
- Ministry of Information (2005) Oman. Years of Progress and Development. Muscat.
- Nebel, S. (2014) “Tourism and Urbanization in Oman: Sustainable and Socially Inclusive?” In: Wippel, S., Bromber, K., Steiner, C. and Krawietz, B. (Eds.) Under Construction. Logics of Urbanism in the Gulf Region, p. 55-70. Farnham: Ashgate.
- Peterson, J. E. (2004) “Oman: Three and a Half Decades of Change and Development”. In: Middle East Policy 11(2), p. 125-137.

Figure 2: Capital Area of Muscat . (Source: Apex Map of Muscat (2012) and NCSI 2014: 7f)



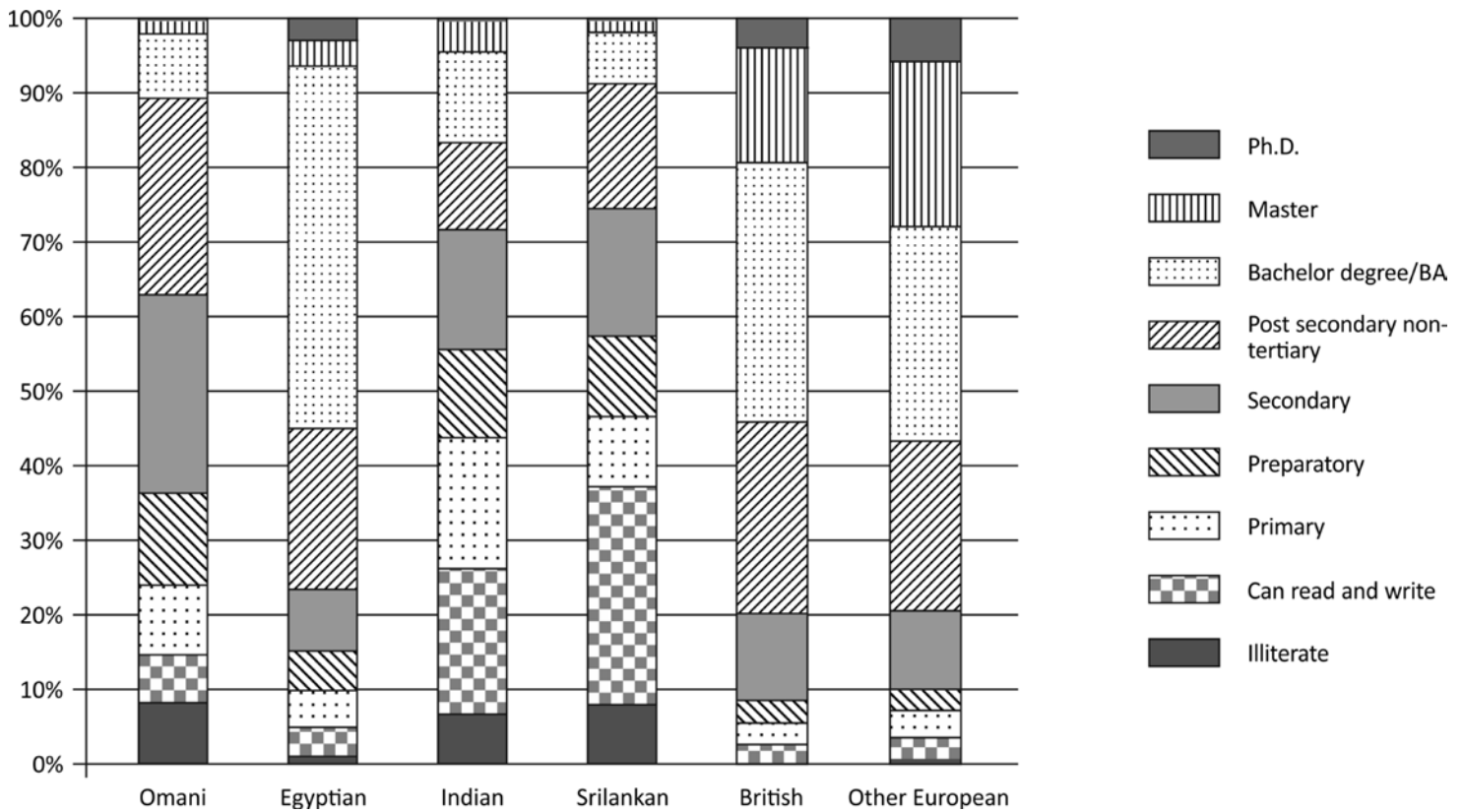


Figure 3: Levels of education of selected nationalities in Muscat (Source: Special calculations of census data 2010 by the Ministry of National Economy; own calculations)

Spatial practice

The living and working conditions of the transnational migrants in Oman are very much dependent on the kind of work contracts they have. The contracts not only determine for how long labour migrants can stay in the country, but also their monthly income and, to a certain degree, where they can live (location, price, and surroundings), the degree of freedom of movement they can enjoy, and the choices they have when it comes to their children's education.

Figure 4: Small-scale heterogeneity (by nationality) within an upper-class neighbourhood in Madinat Sultan Qaboos (Source: own sketch based on interview statements)

Work contracts, therefore, directly determine the framework in which the structural integration of expatriates can take place and, indirectly, also impact the extent of social integration. At the end of the day, it is the employer with whom the work contract is negotiated who determines

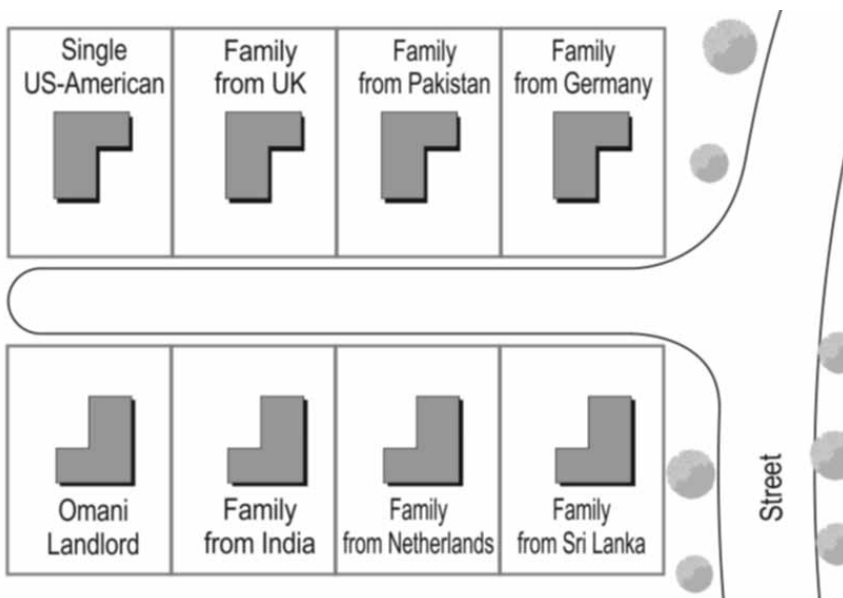
whether a migrant develops a sense of having been integrated or of being discriminated against.

The differences in the everyday lives of migrants in Muscat are exhibited particularly clearly by the different spatial-practice opportunities, such as the choice of residential location, the freedom of movement enjoyed, and the zones of contact (i.e. encounters either in public or private space for communication, exchange, or shared social activities).

Since the housing market in Oman is just as restricted as the labour market, one can speak of a choice of place of residence only with qualifications. Many of the lower-income migrants live in apartments or houses that their employers provide or rent on their behalf. Domestic employees generally live at their place of work, i.e. the private home in which they work as nursemaids, cooks, gardeners, chauffeurs, or the like.

However, even many among the higher-earning foreigners do not have the opportunity to freely choose where they wish to live. They are either offered houses owned by their employer, or they receive an allowance towards their rent in addition to their pay. The size of the accommodation depends on whether they are living in Oman alone or together with their family. The status-related possibility of bringing spouses and children to Oman also shows how privileges differ: highly-qualified employees and skilled workers are allowed to bring their families, whereas poorly-qualified and unqualified employees may not. As a result, social recognition of any kind is directly related to professional and educational status.

Unrestricted mobility is another key distinction category for spatial practice. Western expatriates also receive preferential treatment in this respect, given that their



international driving licences are immediately recognised. Workers from the Asian subcontinent are subject to the severest restrictions on their mobility.

For contract or domestic workers, the question of owning their own cars in Muscat generally does not even arise due to financial reasons. However, the structural hurdle of not having their driving licences recognised is also decisive for high earners of Asian-subcontinent origin. Renewing or activating a driving licence for Oman is not only extremely costly for them, it is also an exceptionally rigid procedure; even repeated attempts at passing the driving test often end in failure.

In Muscat, a city with only few local public transport facilities, life without the personal mobility provided by one's own car means dependence on taxis, which usually represents a major financial burden (see Deffner/Pfaffenbach 2013).

The possibilities for contact between the different European communities are varied; however, all Europeans interviewed concentrate primarily on their own community. The international neighbourhood functions without conflict, but in order for friendships to develop and grow, the same (native) language evidently needs to be spoken. More intense social contacts between Europeans and Asians are rare.

Even in the case of highly qualified Indian colleagues, contact is more inclined to be confined to a professional level. Although the guest community is very much valued and appreciated, contact to Omani colleagues and neighbours remains superficial: the Omani locals are, however, praised for the friendly atmosphere which they propagate. Foreign nationals therefore feel accepted, but not integrated.

Also, in the case of Indian expatriates who have been in Muscat for a very long time, sometimes for the entire duration of their working lives, which can be as much as 40 years, they very seldom have the opportunity to mingle socially with Omanis.

Their closer circle of friends and acquaintances is clearly confined to their own national community. Contact remains of a pragmatic nature and breaks off in the vast majority of cases after they return to their home countries (see Deffner 2014).

Intercultural encounters remain superficial even in the case of similar interests, hobbies, and lifestyles because all involved know from the outset that they are there only for a set amount of time. Contacts in everyday life are determined by social position and are reduced down to the professional relationship between customer and service provider, e.g. in the gastronomy sector, in retail, or in the beauty sector.

Summing up, it can be said, with respect to the spatial daily life lived by migrants, that in the case of those with a high professional and educational status, it is characterised by the affording of freedoms and tolerance from the Omani guest society, while those with limited qualifications or in low-paid jobs are confronted with extreme limitations on a daily basis.

Production of the urban

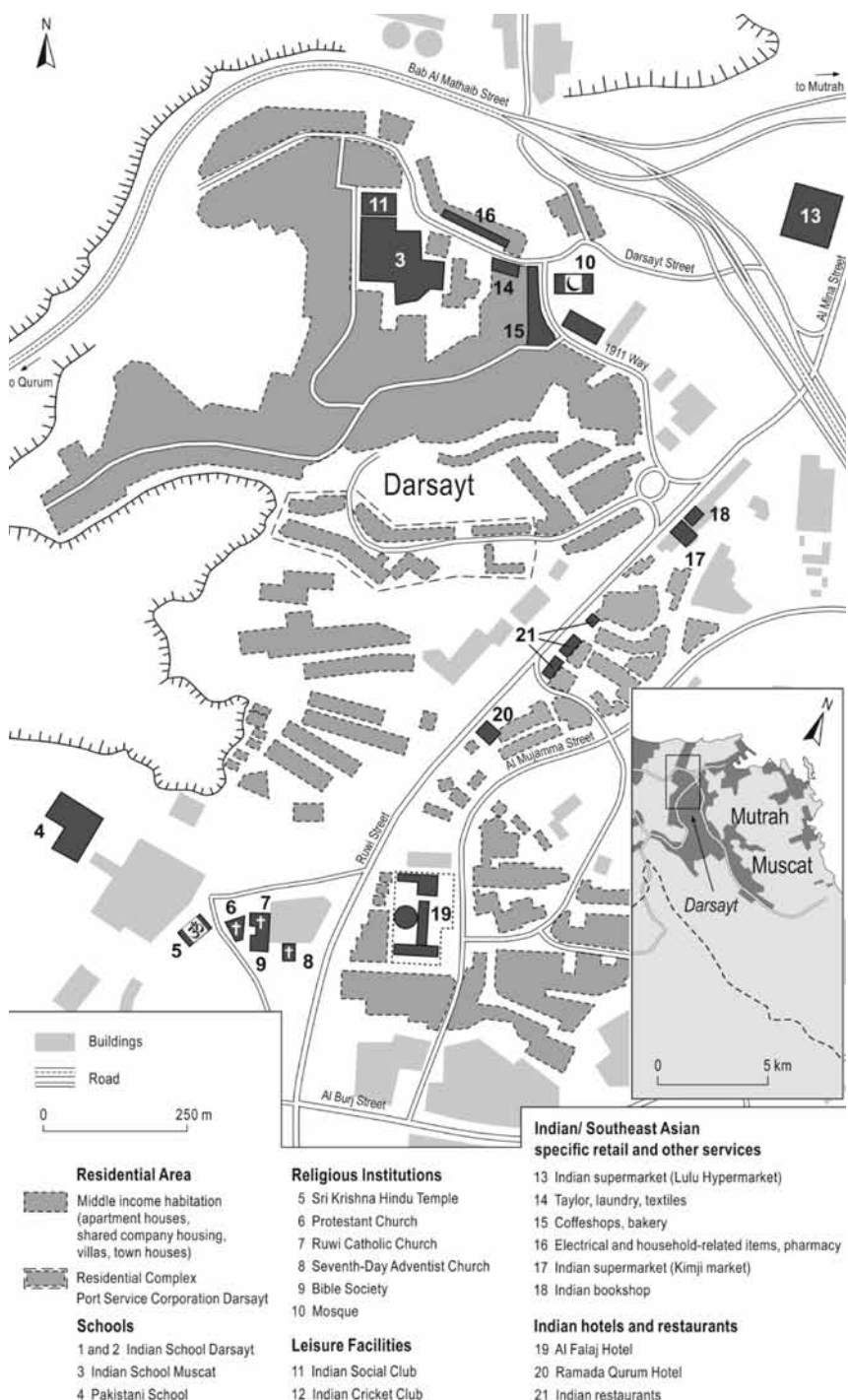
Against the background of the framework conditions and study results presented thus far, the urban and social production in Muscat can be demonstrated in the following in two categories: socio-spatial segmentation and integration.

Socio-spatial segmentation

The socio-spatial differentiation according to nationality, Omanis included, as described by Scholz (1990) for the 1980s, can no longer be confirmed as a fundamental category in Muscat.

Today, the urban space is merely subdivided into quarters in accordance with the different rental and purchase prices.

Figure 5: Socio-cultural infrastructure of Southeast Asian communities in Darsayt/Ruwi, Capital Area of Muscat (Source: own sketch; cartography: H.-J. Ehrig)



The practical reality of the choice or allocation of the place of residency results in a relative small-scale heterogeneity within the respective neighbourhood (see Figure 4). That said, however, a spatial concentration of certain income groups across the entire urban area is scattered and subtle and seems to follow a more small-scale “mixing” pattern of individuals of different socio-economic positions. In a household of four or more wealthy Omanis or expatriates, it is very often the case that at least two domestic employees – who live separately in small rooms in the side wings of the residential houses – also need to be counted.

Nevertheless, the spatial practicality of choosing the place of residence – within the framework of the aforementioned freedom to choose – happens in accordance with individual preferences and pragmatic considerations that are influenced by a number of different factors, e.g. the level of mobility, the distance to the workplace, to the schools for kids, or to other important facilities such as religious institutions or preferred assortment for daily or frequent local supply.

Hence, we can find on a middle to larger scale a certain concentration of predominant Southeast Asian, particularly Indian, social infrastructure e.g. in the area of Ruwi (see Figure 5). Mainly due to the largest Indian Schools in Muscat (approx. 7,000 pupils) based in Darsayt, a considerable number of Indian middle-income families chose their place of residence in the surrounding area.

As the nearby CBD of Ruwi comprise most of the working places in the low skilled service sector (workshops, small retail etc.), most of the employers with main origin from India, Pakistan, and Bangladesh, are living in the apartments or shared company accommodations in the same area as well. However, the area is still socially and structurally heterogeneously mixed, regarding nationality and socio-economic position, as well as the condition of the housing structure (see Photos 1 & 2).

Integration into the urban society

Decisive for the central question, with respect to the social and spatial production in Muscat, continues to be the possibilities for integration.

In Oman, however, the question of integration needs to be considered in a way that is detached from the paradigm of assimilation (see Esser 2003, 2008), as assimilation is not possible by virtue of social principle. An aspect of this is that the residency permit is directly dependant on the employment contract, which can be terminated at any-time by the employer. Social welfare payments from the state are reserved, for the most part, for national citizens. The naturalisation of foreigners, on the other hand, is only possible in rare, exceptional cases.

A structural integration of foreigners takes place predominantly through the job market, which also determines, in a very transparent way for all involved, the social position of each individual. The often-praised “welcoming culture” of the Omani guest society, however, only extends its recognition to highly-qualified professionals. In order to differentiate a permanent integration of foreigners from a limited stay of transnational migrants, the term

“incorporation” is occasionally used. The indicators that underlie the characterisation of (non)integration and (non) incorporation are, however, the same (see Goebel/Pries 2003, Yeoh 2006, Glick Schiller/Çağlar 2009), and it is for this reason that the established term “integration” has been given preference here in this case.

Despite the fact that the Omani society demands cultural hegemony for itself, it still allows a limited degree of diversity to exist within its society. On the one hand, this entails allowing all foreigners the freedom to live the lifestyles which they choose as long as they adapt and adhere to local behavioural norms in public spaces (e.g. ban on alcohol, appropriate clothing, discrete demeanour).

On the other hand, migrants of a different religious confession are allowed to practice their religion and to erect religious buildings such as temples and churches — as long as a religious community has formed that provides the financing. The individual willingness on the part of migrants to make such an investment in a place in which they will only live for a limited period of time is, however, rare.

At the same time, an image-cultivation is pursued on the part of Oman which aims to disguise the very presence of foreigners in the country and their contribution to the modernisation of the economy and society (see Ministry of Information 2005).

In this respect, the issue of ethnic-cultural diversity in view of the heterogeneous population is also not even broached upon, not even as a temporary occurrence. Due to the statutory provisions in place in Oman, foreign workers are only in the country on a temporary basis, and it is for this very reason that the issue of integration, from the Sultanate’s perspective, is of no importance (see Deffner/Pfaffenbach 2013).

Conclusion: temporary integration for transnational migrants

In order to answer the questions if and in which segments of the society integration is possible, the following conclusion can be drawn: The Omani host society reduces its migrants to their labour. Immigration in any form is welcome only if it is temporary. Permanent immigration extending to assimilation, wherein any kind of ethnic difference disappears as a result of adaptation of the migrants, and naturalisation, are not desired.

Therefore, integration opportunities for transnational migrants are extremely restricted, with structural integration into the labour market and socio-economic positions becoming the decisive category. The host society as a whole is not available as a point of reference for social integration, but only that segment of the heterogeneous society which is accessible to the migrants based on their individual economic, social and cultural capital.

However, the Omani host society is perceived as tolerant, polite, down-to-earth, and helpful, and that is in pleasant contrast to other recruiting GCC-countries. Omanis, in general, are held in high regard – and especially because they participate in professional life. Critical voices, however, do point to different working cultures, including

References (cont.)

- Pradhan, S. (2013) “Oman-India Relations: Exploring the Long-Term Migration Dynamics”. In: Wippel, S. (ed.) *Regionalizing Oman. Political, Economic and Social Dynamics*. United Nations University Series on Regionalism/6, Dordrecht, p. 107-128.
- Randeree, K. (2012) *Workforce Nationalization in the Gulf Cooperation Council States*. Center for International and Regional Studies, Occasional Paper No. 9. Qatar.
- Scholz, F. (1990) *Muscat. Sultanat Oman. Geographische Skizze einer einmaligen arabischen Stadt*. Berlin: Das Arabische Buch.
- United Nation Expert Group (2006) *International Migration in the Arab Region*. UN Expert Group Meeting, 15-17 May. Beirut. http://www.un.org/esa/population/meetings/EGM_ttmig_Arab/P14_PopDiv.pdf [14.11.2014].
- Valeri, M. (2009) *Oman. Politics and Society in the Qaboos State*. London: Oxford University Press.
- Yeoh, B. S. A. (2006) “Bifurcated Labour: The Unequal Incorporation of Transmigrants in Singapore”. In: *Tijdschrift voor Economische en Sociale Geografie*/97(1), p. 26-37.
- al-Shaibany, S. (2013): Oman raises minimum wage to avert future protests. <http://www.reuters.com/article/2013/02/09/us-oman-employment-wage-idUSBRE91805A20130209> [14.11.2014].
- GLMM (Gulf Labor Markets and Migration; 2014): *Demographic and Economic Database*. <http://gulfmigration.eu> [14.11.2014].
- NCSI (National Centre for Statistics and Information; 2013): *The Statistical Yearbook 2012: Employment*. http://www.ncsi.gov.om/NCSI_website/book/SYB2013/contents.htm [14.11.2014].
- NCSI (National Centre for Statistics and Information; 2014): *The Statistical Yearbook 2013: Population*. http://www.ncsi.gov.om/NCSI_website/book/SYB2014/2-Population.pdf [14.11.2014].
- Ministry of Manpower (2014): *Omanisation % per Sector*. <http://www.manpower.gov.om/portal/en/OmanisationPerSector.aspx>[14.11.2014].



◀ **Photo 1:** Small retail services in Darsayt/Ruwiome (Source: V. Deffner, February 2015)

e. g. a lack of technical skills or of self-responsibility in the private sector.

This raises the final question as to what can be learned from the segmented immigration society of Muscat, in spite of the multiple disintegration processes that can be observed and an immigration policy designed to be temporary.

On the one hand, segmentation into the many “worlds” of transnational migrants extending even to parallel societies is tolerated, whereas in other (Western) contexts, this segmentation is almost instinctively demonised as a risk

to social stability and cohesion. From an Omani perspective, tolerance can be considered as the recognition of differences in terms of the lifestyle and religious and cultural orientation of expatriates during their stay in Oman.

On the other hand, the Omani host society may well give transnational migrants precisely that what they expect, since the society has never adopted the paradigm of assimilation into social and political discussion: better pay than in their home countries, a high quality of life, and a freedom to live one’s own lifestyle and practice one’s religion –in other words: temporary integration for a life in transition.



◀ **Photo 2:** Middle income habitation in Darsayt (Source: V. Deffner, February 2015)

▶ **Veronika Deffner**

is a social and cultural geographer. She is working as a visiting senior research fellow at the Middle East Institute of the National University of Singapore. Before, she was a post doctoral researcher and lecturer at RWTH Aachen University and a visiting assistant professor at the German University of Technology in Muscat (Sultanate of Oman). She received her PhD for her thesis on social and spatial inequalities in Salvador da Bahia (Brazil). Since 2009 her research is dedicated to the implications of international migration on the production of space and society and urbanity in Gulf cities, with focus on Oman and the Indian Ocean rim. Her current research topics include nationalisation strategies, economic diversification and trans-locality in the GCC. Contact: <veronika.deffner@nus.edu.sg>

Carmella Pfaffenbach

is Full Professor at RWTH Aachen University at the Department of Geography teaching Cultural and Urban Geography with a focus on heterogeneous urban societies. She holds a PhD from the University of Erlangen and a Habilitation from the University of Bayreuth. In her academic career she has been visiting professor at Universities in Munich, Vienna, Rabat and Muscat. Her research focus is on migration and urban fragmentation in Europe, Northern Africa and the Middle East. Contact: <pfaffenbach@geo.rwth-aachen.de>

Place Attachment and Sense of Belonging in Oasis Villages in the Capital Area of Muscat

Marike Bontenbal, Veronika Deffner

Raumverbundenheit und Zugehörigkeitsempfinden in Oasendörfern der Hauptstadtregion

Anhand eines Wohngebiets im wilayat Bowsher in der Hauptstadtregion von Maskat wird hier die Raumverbundenheit bzw. das Zugehörigkeitsempfinden der omanischen Bewohnerschaft zu ihrem Wohnort beleuchtet. Im ausgewählten Raumausschnitt in Bowsher liegen noch stark traditionell geprägte ehemalige Oasendörfer inzwischen sehr zentral im rasch wachsenden Stadtgebiet. Die Ergebnisse einer empirischen Studie der Autorinnen zeigen, dass diese Wohngebiete weiterhin sehr attraktiv für die hier ansässige Bevölkerung sind. Dies wird durch einen sowohl individuellen als auch kollektiven Sinn für räumliche Zugehörigkeit und soziale Bindungen erklärt. Die Frage, ob traditionelle Siedlungen an Attraktivität für die einheimische Bevölkerung verlieren, gewinnt vor dem Hintergrund des wachsenden Angebots an modernen und größeren Häusern oder Wohnungen in Neubaugebieten zunehmend an Bedeutung für die Planung sozial nachhaltiger Nachbarschaften.

Introduction

Over the last three decades, the Sultanate of Oman has experienced rapid urban development and population growth. Urbanisation rates have increased from 11% in 1970 to 84% in 2009 (Al-Laithi et al. 2010). Oman's urbanisation follows a pattern that is common for Arab Gulf states and largely the result of welfare policies, financed by oil revenues, providing free access to a number of infrastructures, services, and assets, including land. It has been claimed that the granting of land to citizens is one of the main actors shaping Gulf cities (Hamouche 2004). In Oman, this policy has resulted in vast urban areas of "land grant neighbourhoods" (Nagy, 2006), with relatively low densities and that follow urban expansion patterns towards the urban fringe, in which Omani families construct their homes, in accordance to today's comfort standards, on granted plots of land.

Within these urban dynamics, the meaning of traditional "old" neighbourhoods as residential areas has shifted considerably. Following the swift modernisation process, private vehicles became the main mode of transportation due to the lack of any wide system of public transport services. As the significance of distance diminishes in all urban areas in the Gulf, including Muscat, the historical urban areas seem to be losing their residential appeal to many of their traditional inhabitants, who now prefer a higher level of comfort: larger houses, more space and privacy thanks to large walled and gated plots meant to house one family, and less congestion. Space and privacy have become some of the key preferences of today's urban Gulf residents, as is reflected in the relatively low-density set-up of the suburbs and land-grant neighbourhoods. This has also resulted in a shifting meaning of neighbourhoods as social spaces. As a result of the new residential neighbourhoods that develop from a random allocation of plots to citizens, the traditional spatial clustering of tribes is quickly disappearing. Traditional residential quarters such as haras, where extended families and tribal members used to reside together, are being rapidly replaced by individual, isolated nuclear-family homes on

walled plots detached from their surroundings. This paper addresses the relationship — i.e., the sense of belonging and place attachment — residents have with their neighbourhood, using the example of a traditional neighbourhood area in Muscat we refer to as the Bowsher villages. A residential composite of small, former oasis villages in the wilayah of Bowsher, the Bowsher villages are a part of the greater Muscat capital area located between two other wilayat, A'Seeb and Muscat. This paper questions whether a loss of residential appeal can be witnessed in traditional neighbourhoods of this kind now that modern and spacious housing alternatives are available to all Omani citizens — an urgent question that urban development planning in Muscat is currently facing. To identify this relationship between residents and their neighbourhood, this paper examines the meaning of places and the production of places from a praxeological perspective, thus from the residents themselves, and discusses the findings against the background of the concepts of sense of belonging and place attachment. Based on fieldwork carried out from January to March, 2014, in the case-study area of the Bowsher villages¹, we argue that traditional neighbourhoods are still attractive to their original residents. This is due to an individual and collective "sense of belonging", and reflected in the underlying structural and social aspects of residential patterns. This has important implications for planning socially sustainable neighbourhoods. This study is based on qualitative and quantitative data. A survey was conducted among residents with a sample of 82 respondents, both nationals and expatriates, aged 18 and above. In-depth interviews with residents and participatory observation were also carried out.

Conceptual framework: sense of belonging and place attachment

The meaning of neighbourhoods as places refers to the idea that they are social and cultural constructs with different meanings for different individuals or groups. Vice versa, places are produced and maintained through an array of social and cultural practices that ascribe meaning or values to the places. The social processes, symbols,

¹ We would like to thank the following Omani students of the Department of Sustainable Tourism and Regional Development of the German University of Technology in Muscat for their engagement in this study: Al Anood Al-Mohamed, Asya Al-Naamani, Murooj Al-Bulushi, and Shurooq Al-Hashmi conducted interviews and questionnaires in the Arabic language, went at various times of day into the "field" to diminish respondent bias and, most of all, gave us indispensable support and insights into their society.

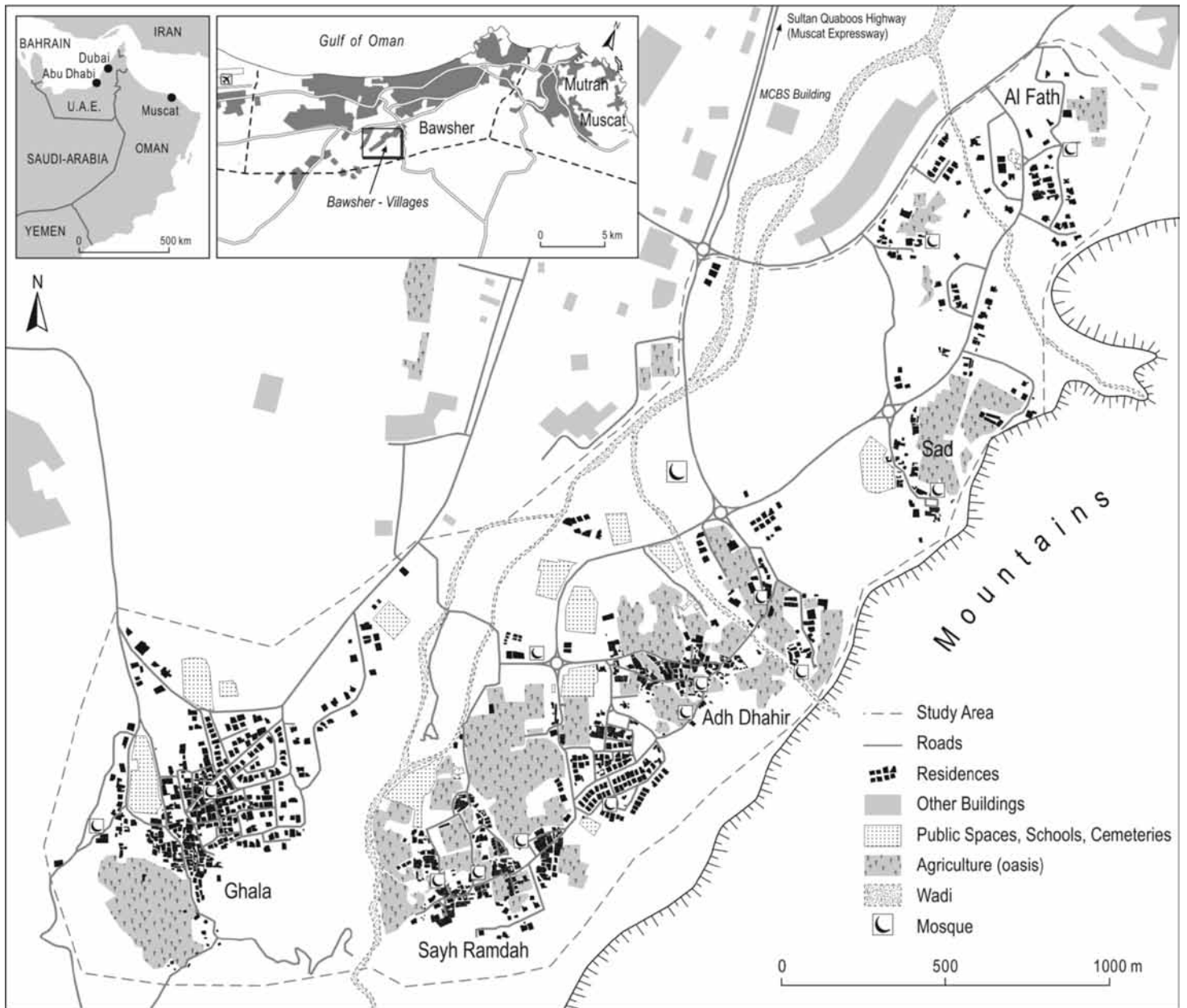


Figure 1: Study area: the Bawsher villages in the Capital Area of Muscat (Source: Own Scetch. Cartography: H.-J. Ehrig)

and values derived from places also inform the identity of the people; a process that strengthens place attachment over time. More consciously, people feel attached to places when they realise the significance and value of a place for the organisation of their everyday life. The parameters for place attachment can be spatial (i.e. measurable in form of distances, proximity, mobility, residential conditions, etc.) or social (i.e. measurable in emotional components or social practices, e.g. through family tradition, social networks, etc.).

Place attachment is described, as a conceptual framework, by Low (1992: 165) as the

“symbolic relationship formed by people giving culturally shared emotional and affective meanings to a particular space [...] that provides the basis for the individual’s or group’s understanding of, and relation to, the environment.”

Place attachment is not only expressed in terms of the subjective feeling towards a geographical location, but also as a behaviour of commitment towards the

community, personal assets (such as homes and businesses) in the location, and social involvement. A number of variables have been identified in literature that affects the level of place attachment. Length of residence, residential origin, and moving intentions are considered key factors explaining place attachment. Length of residence is found to have a positive effect, because the social and psychological ties to a place increase over time, as does the duration of home ownership and the social interaction and psychological dynamics among residents. As Mesch and Manor (1998) observe, home ownership is instrumental to developing social involvement and place attachment. Duration of residence has been found to provide an important temporal context for imbuing place with personal meanings (Cuba & Hummon 1993), and is shown to be a factor that reduces moving intentions (Skifter Andersen 2008). Place attachment can be conceptually distinguished into functional or social/emotional attachment. However, this distinction remains limited in its empirical applicability, as most functional aspects are intertwined or entangled with a socially (or emotionally) driven element, such as the relationships between people, feelings of security or insecurity, or other emotional linkages that

Figure 2: Mixed housing quality in the Bowsher villages. (Source: V. Deffner, October 2014)



References

- Cuba, L. & D.M. Hummon (1993): A place to call home: Identification with dwelling, community, and region. *The Sociological Quarterly* 34, 1, pp. 111-131.
- Hamouche, M.B. (2004): The changing morphology of the Gulf cities in the age of globalisation: The case of Bahrain. *Habitat International* 28 (4), pp. 521-540.
- Laithi, M.A.H. et al. (2010): Population distribution, migration and urbanization in Oman. Muscat: Ministry of National Economy.
- Low, S.M. (1992): Symbolic ties that bind. *Human Behavior and Environment* 12, pp. 165-185.
- Mesch, G.S., & O. Manor (1998): Social ties, environmental perception, and local attachment. *Environment and Behavior* 30, pp. 504-519.
- Nagy, S. (2006): Making room for migrants, making sense of difference: Spatial and ideological expressions of social diversity in urban Qatar. *Urban Studies* 43 (1), pp. 119-137.
- Permentier, M., M. van Ham, & G. Bolt (2009): Neighbourhood reputation and the intention to leave the neighbourhood. *Environment and Planning A* 41, pp. 2162-2180.
- Skifter Andersen, H. (2008): Why do residents want to leave deprived neighbourhoods? The importance of residents' subjective evaluations of their neighbourhood and its reputation. *Journal of Housing and the Built Environment* 23, pp. 79-101.

strengthen the attachment of an individual or group to a particular place. In contrast, functional attachment is conceptualised as being a functional member of a place on a tangible level, such as being a property owner, or being otherwise economically or socially engaged (e.g. through employment and other economic activities such as real estate and agriculture) (Permentier et al. 2009).

Seen from a constructivist perspective, and bearing in mind that social practice embraces functional aspects as well as emotional or unconscious aspects of place attachment, our considerations are based on a holistic understanding of the production of place and space in the examined "habitat" of the Bowsher villages. This means that we simultaneously consider the three dimensions of space production according to Lefebvre's classical spatial triad: imagined space, lived space, and perceived space. This includes the functional and structural aspects of a residential place as well as the traditional and habitual spatial practices, as they influence each other mutually.

The Bowsher villages: residential characteristics

The traditional neighbourhoods in the wilayah of Bowsher are former oasis villages, characterised by the still active falaj system². They are located at the foot of the Hajar Mountains in the east of the capital area. The hereby presented study was undertaken in three formerly individual settlements of the Bowsher villages: Dal, Sa'ad, and Sayh Ramadah, which are qualified as mixed-housing-quality areas (Figure 1). Old, traditional courtyard houses dominate in combination with modern or renovated villas (Figure 2). Many of the houses are currently undergoing maintenance and modernisation, while others are being completely reconstructed to meet modern living standards. While the local Omani residents primarily reside in family villas and courtyard houses, most low-income expatriates occupy individual or shared rooms, while those with a higher income live in newly built terraced houses. The inhabitants are from different tribes and regions. The most prevalent tribes are Al Riyami, Al Hasani, and Al



2
A traditional irrigation system (afaj), composed of small water canals (falaj), in the cultivated agricultural areas of the oases.

Figure 3: Public sphere with local store and mosque in the Bowsher villages. (Source: V. Deffner, October 2014)

Rawahi. The latter tribe, also known as Bani Rawaha, originally came from the wilayah Sama'il in the A'Dakhiliyah governorate, south of Muscat. Survey findings show that the area is occupied by middle-class residents, mostly Omanis but with about 10% non-Omanis; the dominant age is between 25 and 50 years. The majority of the population has completed higher education. The household sizes are mainly defined by large families of at least two to three generations (from the residents' perspective, one family is considered as one generation). The average size of a household is nine members, all related; four of them children and five adults in average. As for the employment status of the residents, the majority of women are housewives, while employed residents work mainly in public sector. Unemployment was mostly stated as being a minor issue, as one working family member is often capable of providing for the entire household.

Sense of belonging and place attachment in the Bowsher villages

Residential origin and mobility

As the studies mentioned above in our conceptual framework have demonstrated, home ownership, length of residence, residential origin, and moving intentions affect levels of place attachment. These aspects will be examined below for the Bowsher villages. The large majority of respondents own their house (87%), and all house owners are Omani nationals, given the legal constraints to owning property for foreign residents. The Omani residents polled have owned their house for an average of 16 years. The home ownership patterns of the Omani residents further demonstrates that many houses have been owned by the family for a longer period of time (20 years on average) than the current residents have lived in them, indicating that the houses have been passed on between generations. More than one-third (35%) of the Omani-owned houses have been in the same family for more than 25 years. The non-Omani respondents rent their dwellings, with the most frequent monthly rent mentioned being 50-150 OMR (100-300 EUR). Examining residential origin, the survey data show that 61% of the Omani residents were born in the neighbourhood; 57% of the respondents were even born in the house they still live in today. Only 30% of the Omani residents came from outside the neighbourhood. The findings show that strong family roots in the neighbourhood and residence are evident in Bowsher. Most of the respondents (63%) indicated that their family had been living in the neighbourhood for more than one generation, 19% of the families had been present for two generations, 28% for three generations, and 15% for four generations or more.

To what extent do Bowsher residents have the intention to move out of the neighbourhood? More than two-thirds (69%) had no intention to move within the next three years, and above all those who had been raised in the neighbourhood would not consider moving. As a 30-year-old female resident explained,

"My children are not as attached as I am because they are exposed to more interesting and modern areas of life, but I enjoyed my childhood here despite its simplicity and would like to grow old right here." Furthermore, 63% of respondents strongly

agreed or agreed to the statement "I would be sad to leave the neighbourhood."

Of the 31% of the respondents that intended to move, 40% wanted to move within the neighbourhood, and 60% outside the neighbourhood. Those that wanted to move within the neighbourhood were mainly Omani citizens who had lived in the neighbourhood for 28 years on average. For 80% of these residents, their families had been in the area for at least two generations or longer. In comparison, those that wanted to move outside the neighbourhood had lived in the neighbourhood for 17 years on average, and 40% of these respondents' families had been in the area for at least two generations or longer. These findings suggest that those who had lived in the area for a longer period of time and had family roots in the area for more than two generations tend to move inside the neighbourhood, while those with a shorter length of residence and less family rootedness in the area tend to be more likely to move outside the neighbourhood.

Functional place attachment

Various aspects define functional attachment, such as economic ties to the neighbourhood and the use of and dependency on neighbourhood services and facilities. Very few respondents had economic ties to the Bowsher villages (other than home ownership). Only 12% of the respondents gain an income from economic activities in the neighbourhood, and that which is earned are mostly minor revenues generated from property or land. Although the Bowsher villages show a multitude of extensively farmed agricultural plots, residential involvement in the agricultural sector (beyond the level of producing for own use only) is very low. Two reasons for this are that the farms are mostly owned by shaikhs living in other wilayat and, also, the workers (nationals and expatriates) in the farms are not residents of the same village. For the residents themselves, this type of agricultural activity does not match the modern needs and expectations of their lifestyle, due to the time-consuming nature of the occupation and the corresponding low income, which does not cover the needs of the larger families if only one member is working. Plus, the water and soil conditions in the farms are not adequate for intensive agricultural production, and thus inadequate as a main source of income. Instead, economic activities are generally detached from the neighbourhood, with the majority of income derived from formal employment in the public or private sector outside the neighbourhood. The villages do not provide that sort of formal employment with stable, fixed salaries.

Even though the Bowsher villages are mainly residential areas, there are a number of commercial outlets such as shops, food outlets, tailors, and laundries (Figure 3). The shops, or "mini marts", are small in size and sell common, daily-used items and necessities, and are frequently used by the respondents. A respondent who stated to use them very often was "glad to have the shops within close range especially when something is needed urgently for the household" (male resident, age 30). Another resident added "the shops here are mostly used by our children to buy snacks and cold drinks in the afternoons; they really enjoy their trip to the dukkan [mini market]". Regarding public spheres and shared spaces, the mosques and adjacent majlis are the most frequently used public spaces

and facilities in the villages. The mosques are used by men for prayers and funerals, and the majlis or sable are used for gatherings and special occasions such as weddings, engagement celebrations, and funerals. Females use the mosques mainly for taraweeh prayers during Ramadhan, while the public meeting spaces of majlis and sablas are used year round for religious lectures, workshops, and adult literacy classes. It is interesting to note here that especially female residents attend these learning events. Respondents reported that they infrequently use the communal playgrounds, public parks, and green spaces in the area, but this outcome could be the result of a bias in response (no youth were included in the survey). Residents noted they prefer to see their children play in front of their houses with the neighbours' children, whom they trust, than having them play out of their sight in the municipal playgrounds on the fringes of the villages.

Social and emotional place attachment

Social cohesion within the neighbourhood and sense of belonging are aspects relating to social and emotional place attachment. This refers to the social embeddedness of residents in their neighbourhood, which has been found to be a strong marker for place attachment. A number of variables were used to identify social belonging to the neighbourhood (see Table 1). Residents of Bowsher tend to know their neighbours. Almost half of the respondents said they know the residents of more than 10 houses in their area. Also, more than one-third of the respondents have daily interaction with their immediate neighbours. The majority of respondents have relatives living in the neighbourhood (other than those living in the same house): one-fourth of the respondents even said to have more than 16 relatives living in the neighbourhood. Residents commented that the presence of relatives nearby is an important source of social security, comfort, and trust. There is a high participation of residents in social events such as weddings, funerals, or eid celebrations. Another significant aspect of social interaction and

Table 1: Variables and empirical findings for social and emotional place attachment in the Bowsher villages

Variable	Findings
# of neighbours known	48.8% know neighbours of >10 houses 17.4% know neighbours of 6-10 houses
# of relatives living in the neighbourhood	25.6% have >16 relatives living in the neighbourhood 9.3% have 11-16 relatives living in the neighbourhood 20.9% have 5-10 relatives living in the neighbourhood 22.1% have no relatives living in the neighbourhood
Interaction (communication) with neighbours	36% have daily interaction with neighbours 29.1% have weekly interaction with neighbours
Participation in social events	69.8% meet their neighbours at weddings 75.6% meet their neighbours at funerals/mourning 83.7% meet their neighbours for eid celebrations 46.5% meet their neighbours for afternoon tea
Exchange of favours	58.1% share food 50% share rides 38.4% help with household maintenance/chores 34.9% take care of each other's children 31.4% have lent money 26.7% have borrowed a car 26.7% have lent clothes, tools, or household items
Trusting neighbours and being comfortable in neighbourhood	36% strongly agreed and 36% agreed to the statement "I trust my neighbours" 40% strongly agreed and 33% agreed to the statement "I am comfortable in my neighbourhood"
Feeling of safety and security	47% strongly agreed and 30% agreed to the statement "I feel safe in my neighbourhood"

connectedness is the exchange of favours with neighbours, like sharing food or rides, taking care of each other's children, or helping each other with household maintenance. Less often, but still worth mentioning, is the exchange of material items, such as borrowing a car or household items, or lending money.

Marike Bontenbal

has worked in the Gulf since 2009 and is Assistant Professor at the German University of Technology in Oman. She is an urban geographer with special interest in local and regional planning, urbanization, labour markets and demographic transition in the Arab Gulf region. She obtained an MSc and PhD from Utrecht University, Department of Human Geography and Urban and Regional Planning (The Netherlands). She has carried out various neighbourhood studies in Muscat measuring neighbourhood satisfaction, place identity and sense of community. Marike has further conducted research in several other countries, including South Africa, Peru and Nicaragua, and has worked in development co-operation policy at the Dutch Ministry of Foreign Affairs and the European Commission. She has been a consultant, evaluator and trainer in various development projects, and has published in e.g. *Journal of Arabian Studies*; *Urban Studies*; *Environment & Urbanization*; *Habitat International and Public Administration and Development*. Contact: <marike.bontenbal@gutech.edu.om>

Veronika Deffner

is a social and cultural geographer. She is working as a visiting senior research fellow at the Middle East Institute of the National University of Singapore. Before, she was a post doctoral researcher and lecturer at RWTH Aachen University and a visiting assistant professor at the German University of Technology in Muscat (Sultanate of Oman). She received her PhD for her thesis on social and spatial inequalities in Salvador da Bahia (Brazil). Since 2009 her research is dedicated to the implications of international migration on the production of space and society and urbanity in Gulf cities, with focus on Oman and the Indian Ocean rim. Her current research topics include nationalisation strategies, economic diversification and trans-locality in the GCC. Contact: <veronika.deffner@nus.edu.sg>

A number of statements were furthermore posed to measure the residents' opinion on social belonging and level of comfort in the neighbourhood. The findings show high levels of trust among neighbours, with most residents feeling comfortable living in the neighbourhood and sensing a high level of security and safety (Table 1). Findings from in-depth interviews with residents further demonstrate high levels of social and emotional place attachment through a very active social life inside the neighbourhood. Residents know each other and care for each other. When housewives are finished with their household chores, they tend to meet with neighbours for different reasons — such as visiting the elderly or the ill, visiting umra pilgrims, or taking care of women who just gave birth. Men gather in the sabla near the mosques before prayer time. From the social-belonging findings discussed above, a clear picture is drawn that the residents of the Bowsher villages demonstrate a strong social and emotional place attachment to their area of residence. Social networks and relationships, as well as mutual social "control", thus play a major role in attained levels of place attachment and commitment. In addition, a very strong place identity was often observed: "We, the authentic residents of Bowsher who occupy the wilayat from the mountain upwards, we strongly identify with this land as our property and source of pride, and I am a proud resident of this village, neighbourhood and wilayat" (Omani male resident, age 39).

Conclusions

To what extent does the "old" and traditional nature of the Bowsher villages result in a loss of residential quality through compromised housing quality, space, comfort, and privacy? Based on in-depth interviews and observation, it becomes clear that residents demonstrate high levels of residential satisfaction despite lower housing standards. Respondents living in houses of poor condition in need of maintenance and renovation still said that they feel very satisfied with living in their houses. Survey findings show that more than half of the respondents are very proud of their residence, despite high levels of crowding (more than 10 people in one house is common) and needed renovation.

Although Omani citizens have the opportunity to construct a modern family home that meets today's comfort standards due to the land-grant scheme, the oasis villages described in this study continue to be highly attractive places of residence to their inhabitants. The study has demonstrated that most of the residents do not want to move and also show a great appreciation of the residential aspects of these villages. Important reasons that explain this satisfaction with the neighbourhood, despite compromised housing quality, can be found in the high levels of place attachment and sense of belonging, which have been addressed in this study. A strong attachment to place is, to a large extent, explained by residential origin and social practice: the tribal and family ties to the

neighbourhood, the long duration of residence in the area on average, and the roots to the villages where many residents said their family had lived for many generations. Economic ties appear to be of less importance in explaining place attachment, as residents do not tend to work there and also have very few other income-generating activities in the neighbourhood, such as income from real estate or agriculture. Functional place attachment was, however, witnessed in the use of public spaces and facilities, primarily the mosques, sabla and majlis, where village residents tend to gather. The study suggests that of most importance are the emotional and social aspects of place attachment, and the strong sense of belonging witnessed in the area. Due to the social practice mentioned above — familiar ties amongst the neighbours, or sharing the same lifestyle and cultural attitudes — social cohesion is a strong factor. Therefore, the level of participation in social events and exchange of favours with neighbours is very high.

Given the tribal ties, a significant number of residents also identify with the villages as "their land" and a source of identity and pride. Even though the younger generation is exposed to modern patterns of lifestyle, consumption, and a higher level of mobility nowadays, social cohesion is still continued through their social practice, which basically emerges from an ongoing traditionally conservative, family-centred lifestyle and a high attachment to the values of the country and society. It is likely that spatial proximity to the parental home is a key factor in the location preferences of the young Omani moving into newly built houses, but further research is needed to address this in more detail. In general, if not imposed by work, Muscat-born residents rarely move to other cities in Oman.

The identity of Muscat is remarkably characterised by its cosmopolitan spirit, and is hence expectedly a more modern and progressive place. But also on the scale of the capital area, the studied Bowsher villages have not lost their attraction due to the centrality of their locations within the wider development region of Muscat. The connection to the newly built Southern Express Highway offers swift accessibility and also connects the villages directly to the new urban extension zones on the other side of the mountains (e.g. Al Amarat). However, the successive opening of the real estate market to investment and speculation has led to significant price differences in the housing and property market. Therefore, the tendency that more and more young Omani families consider moving to more-distant new housing areas, in order to profit from the spacious and modern accommodations in the new construction areas, is predictably rising. This might lead to a more-significant change in the patterns of residential preferences in the future. This study is a case study of one residential area only; for comparison and contrast, future work should address other traditional neighbourhoods as well. This would help to further develop our understanding of the main factors that explain residential quality and social cohesion in neighbourhoods in Oman.

These findings are relevant to policymakers and urban planners alike for shaping the new residential areas of the country, which should not only be sustainable in terms of energy use, infrastructure, and housing quality, but in social and emotional aspects as well, so as to allow for a high quality of life in the neighbourhoods of the future.

Design Proposals for a More Sustainable Urban Development of Residential Quarters in Oman

Alexander Kader

Entwürfe für eine nachhaltigere Quartiersentwicklung im Oman

Die städtischen Regionen der Golfstaaten sind gegenwärtig geprägt von einer starken urbanen Expansion mit hohem Landschaftsverbrauch. Die dabei neu entstandenen Wohngebiete sind meist nur sehr dünn besiedelt, monofunktional, PKW-abhängig und ohne urbane Lebensräume für die Bevölkerung. Dienstleistungsangebote, öffentliche Einrichtungen und öffentliche Verkehrsmittel fehlen größtenteils. Eine derartig einseitige Entwicklung ist langfristig nicht tragbar. Um Verbesserungsmöglichkeiten zu finden, wurden in der vorliegenden Studie Strategien erarbeitet, wie die suburbanen Stadtquartiere den Paradigmenwechsel zu einer nachhaltigeren und sozialeren Entwicklung vollziehen können. Anhand von beispielhaften Gestaltungskonzepten werden Vorschläge dargelegt, wie die bestehenden Wohnquartiere im Oman entsprechend transformiert werden könnten. Basierend auf den Ergebnissen eines Entwurfskurses, durchgeführt mit lokalen Studenten des Department of Urban Planning and Architectural Design an der German University of Technology in Oman, werden mögliche Leitlinien für eine sozialgerechtere, nachhaltigere und klimaangepasste Entwicklung von bestehenden Wohnquartieren aufgezeigt. Wesentliche Merkmale sind dabei eine starke Erhöhung der Bevölkerungsdichte mittels Nachverdichtung sowie die Implementierung von öffentlichen Funktionen sowie kommerziellen Dienstleistungen in das Stadtgefüge.

Background: general remarks and overview of challenges

Because energy prices in the Gulf countries are low, to date there has not been a strong economic need to invest significant effort into energy conservation. One result of this is that the Gulf countries' carbon footprints (on a per capita basis) are among the highest worldwide (see World Bank 2014). Unsustainable urban environments are a significant contributor. However, climate change awareness is increasing, and the need for emission reduction is becoming much more pressing. At the same time, energy prices are going to rise in the long run and energy is going to become less affordable. Another possible motivation for a shift to more sustainable economies could be the introduction of a worldwide tax on greenhouse gas emissions. The global energy sector has to be structured in a much more ecological way and must shift towards low-emission energy generation and distribution. Because a huge percentage of the world's energy demand is generated by buildings and urban structures, the potential for improvement within the building-construction sector is very high. Suburban residential quarters, in particular, have immense improvement opportunities (see Calderon 2014). Large areas of the Gulf countries' suburban neighbourhoods contain a multitude of deficits in that they are not sustainable, energy efficient, or appropriate to their populations' needs. They frequently feature the following characteristics: low density of buildings and inhabitants in relation to open spaces, mono-functionality, car dependency, lack of climate adaptation, insufficient public transport, lack of major social functions, and more (see Nebel 2014).

The primary reason for this sprawl is that the Gulf countries have been going through a period of rapid growth and socio-economic progress wherein economical,

political, and cultural decisions have generated a highly unsustainable environment. For example, the suburban development of the Capital Area of Muscat stretches along the coastal Al Batina plateau for more than 100 km. Wide-spread, single-family houses are the prevailing residential building type, with mono-functional zoning and a dependency on individual traffic. All these conditions have been strongly supported by governmental planning policies — and, in particular, the existing land-tenure system in which, at the age of 25, every Omani woman and man is assigned a building plot in order to build a detached villa for their family. Since not all plot owners have the need to construct a house right after the receipt of his or her plot, the land-tenure system is also partly responsible for the fact that some plots within a neighbourhood remain undeveloped for long periods of time.

Starting point of the research, goals and solutions

The primary goal of this study is to determine which strategies could be undertaken on a design level to improve the current urbanisation processes in existing residential quarters in the Gulf countries. Since a shift towards a low-carbon, climate-resilient path of growth and development (see Calderon 2014) will be necessary in our near future, immediate measures must be taken against unplanned and unstructured urban growth that causes significant environmental damage as well as economical and social harms.

Seen from a global perspective, there is a clear impetus to integrate the commonly recognised measures for a sustainable urban upgrade of residential quarters (see Lehmann 2014). This is also the case in the Gulf countries. Therefore, exemplary residential quarters in the Capital Area of Muscat, Oman, were carefully selected and

Figure 1: Typical suburban residential area in Oman with low building density and vast, unused open areas. (Source: Kader, 2014)



References

- Calderon, F. and Stern, N. et al. (2014) Better Growth, Better Climate – The New Climate Economy Report 2014, The Global Commission on the Economy and Climate, World Resources Institute, Washington D.C.
- Gehl, J. and Gemzoe, L. (2004) Public Spaces, Public Life. Copenhagen: Danish Architectural Press.
- Gehl, J. and Gagner, L. J. (2011) The Mawalih Souk of Life – Masterplan and Sketch Design Report (Gehl Architects in cooperation with Behnisch Architekten, Transsolar Klimaengineering and Schlaich Bergermann u. Partner). Copenhagen.
- Gharibi, H. (2010) Urban Growth in Muscat from Patchwork to Sustainability. Presented at the conference Muscat Green Days. German University of Technology: Muscat
- Gharibi, H. (2014) Urban Oman- from pre-oil to post-oil urbanization in Muscat. Presented at the conference Challenges of Urbanization in the Arab Gulf Countries. German University of Technology: Muscat
- Lehmann, S. (2014) Low Carbon Cities, Transforming Urban Systems. London: Earthscan Publishers
- Nebel, S. (2014) Land-use management for sustainable urban development in Oman. Presented at the conference Challenges of Urbanization in the Arab Gulf Countries, German University of Technology: Muscat
- Radovic, D. (2009) Eco-Urbanity: Towards Well-Mannered Built Environments. London: Routledge
- World Bank (2014) Databank CO2 emissions (metric tons per capita) by country 2010-2014. data.worldbank.org

analysed by urban-planning students from the German University of Technology in Oman. Based on the analyses, a series of weaknesses could be identified. In order to demonstrate the feasibility of various intervention methods, a set of design proposals was developed by the students. The focus was an upgrade of the residential areas in different steps: from larger-scale projects providing measures to improve the infrastructural organisation of the neighbourhood, to smaller-scale projects on the levels of urban and architectural design. Each scale contains its own individual methods for upgrading the existing areas through the use of more sustainable solutions.

Case-study analyses of suburban quarters in the Capital Area of Muscat, Oman

In order to identify the common properties of the numerous suburban areas in the Capital Area, a diverse selection of 18 residential suburban quarters was analysed. Furthermore, the areas' individual potentials for future developments were to be found. Field work was conducted by the students on site. Several factors – including functional, social, spatial, ecological, aesthetic, cultural, climatic and geographic considerations – were observed, isolated, and evaluated. Peculiarities, strengths, and weaknesses were then identified. It has been considerably helpful that most of the students were locals and had personal connections to the areas. In order to facilitate comparisons between the 18 areas, each analysed area had a size of 1000 m by 1000 m (1 km²). After analyses and comparisons, and in conformity with previous research, a series of essential factors could be clearly identified. The most significant factor is the low density of buildings and inhabitants, a primary feature behind the generation of unsustainable development (see Gharibi 2014). Through the analyses, a large number of unused plots and broad areas of free space along many streets, often even along smaller residential ways, were found. At the same time, it could be demonstrated that almost all quarters contain a large number of under-developed pedestrian facilities and insufficient public functions. Walkability is often very limited. Houses, as well as public

areas and squares, consistently lack shaded protection from the sun. Social and commercial services are poorly integrated into residential areas, or are lacking altogether. Instead, single-family villas can be found in abundance, and residents have to drive several kilometres by car for the most essential services (see Gharibi 2010). Therefore, an essential need for mixed-use neighbourhoods has been identified.

A selection of exemplary international city quarters was also analysed and compared to the Omani examples in order to demonstrate the variety of ways that urban density and mixed-use environments are essential prerequisites for sustainable environments. The international examples are more structurally efficient and sustainable due to their, e.g., higher density, higher quality of public functions, efficient public transport networks, and building standards regarding energy efficiency. The average density of the international examples is 13,825 inhabitants/km², which is more than three times higher than the average density of the Omani sample of 4141 inhabitants/km². The area of land covered by buildings from the international sample averaged 54%, whereas the Omani sample's average was just below half that at 23%.

Furthermore, the analysed international examples contain most of the aspects of "urbanity", an essential phenomenon for achieving a socially and ecologically balanced human agglomeration (see Radovic 2009). But in the Capital Area of Muscat, as well as in large parts of the other cities of the Gulf countries, the features of urbanity are largely absent. Instead, car dependency prevails. In comparison with the Omani examples, the selection of international examples can be considered more liveable due to a greater amount of social and public services. At the same time, due to their composition and organisation, they have a significantly lower amount of greenhouse gas emissions on a per capita basis.

For these reasons, the international examples have provided an essential contribution for the development of strategic visions for the selected areas in the Capital

Area. But at the same, the cultural and climatic differences between the nations must be taken into consideration as well.

Identified potential specific improvements

After the analysis phase, development proposals on a design level were made for all of the Omani examples. The key features that were made evident during the analyses were now incorporated into the designs so as to formulate a more-holistic final synthesis. Functional, social, spatial, ecological, aesthetic, cultural, climatic, and geographic factors were integrated. The following exemplary case-study projects illustrate three selected individual proposals, all of which can be seen as visionary projects. Among other elements, they contain public transportation proposals, housing, mixed-uses areas, greenery, and urban furniture design. Furthermore, they all focus on redensification, pedestrian-friendly interventions, and the establishment of more lively neighbourhoods. During the design studio conducted with the students from the German University of Technology in Oman, the elaboration of the exemplary proposals started on a large scale (1:5000). After the development of strategic master plans, the course's focus was set step-by-step more towards an urban design scale in order to concentrate more in detail on public spaces, street profiles, and proposing new building typologies. The developed plans show an application of the findings of the preceding analyses and evaluations. At the same time, they appear to be viable regarding their technical and economical feasibility.

However, the proposals do not always correspond to the currently valid Omani planning and building rules. Instead, they intend to demonstrate that there is an urgent need to modify the official planning regulations towards increased sustainability and more social development, as described in this article and as shown in other studies (see Gehl 2011). For future developments, the current plot distribution policy has to be abandoned or strongly modified in order to allow more density and mixed-use building types. The students, with their proposals, have assumed that plot owners could be forced by law to build on their plots within a set time limit or immediately upon receipt of the plot and with a predefined high building volume, preferably for multi-family houses. Furthermore, they have assumed that the existing wide-open spaces along the streets and elsewhere could be filled with various types of buildings as well as with sidewalks, greenery, and public open spaces. The elaborated guidelines of the conclusive part of this article provide further suggestions according to which the planning regulations could be changed.



◀ **Figures 2a-c:** Three examples of analysed residential quarters of 1 km² in the Capital Area of Muscat. (Source: Map data © 2013 Google, Digital Globe)

◀ **Figure 2a:** Al Mawalih
GPS 23.6026 58.2282



◀ **Figure 2b:** Al Mabeila
GPS 23.6498 58.1125



◀ **Figure 2c:** Al Hail North
GPS 23.6374 58.2328

Analysed Area of 1 km ²	Density – Inhabitants / km ² (approx.)	Percentage of Area with Buildings (approx.)	Percentage Area Residential Use, Compared with Non-Residential Use (approx.)
Al Mawalih	4534	34%	95.9% residential
Al Mabeila	2430	28%	95.4% residential
Al Hail North	5030	22%	94.1% residential

◀ **Table 1:** Comparison of data from the selected three examples. (Source: Kader, 2014)

Figure 3: Typical example of a broad and oversized road space within a residential neighbourhood in the Capital Area of Muscat. (Source: Kader, 2014)



Design proposal for Al Mawalih, Muscat Capital Area

Within this design proposal, the following interventions were made. First of all, the area has been redensified. A large amount of the free plots and vast empty spaces have been occupied by multi-storey apartment buildings. Thus, the population density is to be increased from 4534 inhabitants to around 8000. Secondly, a mixed-use neighbourhood has been created. New functions, such as commercial and recreational facilities, have been added in strategically important locations within the area. Landmarks were created, providing the area with individual character. The new social and commercial functions have been widely spread throughout the residential area. Consequently, the inhabitants are encouraged to walk instead of exclusively using their cars. The widths of the car lanes have been reduced, and the pedestrian walkways increased and shaded. Bicycle lanes have also been added. Small parks and playgrounds for kids have been inserted. Trees, mainly Jacaranda and Neem, have been planted along streets, park areas, and other green spaces throughout the neighbourhood. They provide shade for pedestrians and space for recreation. All greenery is to be watered with treated wastewater from the local households. Moreover, a dense pedestrian network has been introduced that passes between the plots of the houses where cars cannot enter. The inhabitants can now reach all major services of their daily needs by walking. They can now gather, socialise, and enjoy their free time. Urban furniture has been installed.

Throughout all design phases, the existing buildings have been carefully integrated into the new supplementary planning.

Design proposal for Al Mabeila, Muscat Capital Area

The quarter of Mabeila is younger than both Mawalih and Al Hail North, and the population density is significantly lower. The analysed square kilometre has around only 2430 inhabitants (as of June 2014). This design proposal increases the population density to around 6500 inhabitants, but leaves open the possibility for further increases. The potential interventions for this area are very similar to those of the areas in Mawalih and Al Hail North. Therefore, all intervention measures, which were already described at the improvement proposal for Mawalih, also apply to this "optimisation by design" proposal for Mabeila.

Design proposal for Al Hail North, Muscat Capital Area

The analysed neighbourhood of one square kilometre in Al Hail North is another residential quarter typical for Muscat and the entire Gulf region. The methods proposed for Mawalih and Mabeila have also been applied to this design proposal. Through the redensification proposal, the population of the analysed square kilometre would grow from approximately 5300 inhabitants to around 8500. In contrast to the two previously illustrated quarters, a highly frequented main road passes through this area. Therefore,



Figure 4: Typical road space in Al Mawalih, Capital Area of Muscat. (Source: Kader, 2014)

the newly proposed public and commercial functions have been predominantly positioned along the main road. Thus, they can be reached, seen, and better promoted because of the greater number of passers-by on this arterial road. On the other hand, the new buildings serve as a helpful element protecting the residential buildings from the traffic noise of the main road. Additionally, many new commercial and social services have been widely spread throughout the area in a way that ensures that the inhabitants can easily reach them for their daily needs.

General improvement proposals (conclusion)

The field studies, analyses, research, and case-study designs have been carried out in order to find possible strategies to transform the existing residential quarters in the GCC countries into more sustainable neighbourhoods. Therefore, strategic guidelines have been developed as applicable steps of intervention for the planning and urban upgrade process of suburban residential quarters. For an optimal implementation of the developed guidelines, a reform of the current planning policies would be necessary. Above all, the land-tenure systems and the binding layout plans for urban areas would need to be fundamentally changed, because they are the cause of the low density we have today in many urban areas throughout the Gulf countries.

The determined guidelines show especially how – with respect to the present plots and villas – the quarters could be densified and transformed in order to become more efficient by adding a series of environmental, economical, and publicly beneficial characteristics.

Since the proposed redensification process would also lead to a higher concentration of inhabitants per square kilometre, the currently prevailing unsustainable consumption of rural land during the urbanisation process would also be reduced.

As most of the analysed quarters are mono-functional residential areas with a very strong car dependency, it was determined that a new implementation of social and commercial non-residential functions would lead to an improvement in multiple ways. The transformation of the areas into so called “mixed-use neighbourhoods” would lead to less traffic due to much shorter distances for the inhabitants. In addition, the road users would save time, and the new closeness to commercial, recreational, and social functions would in many cases make the use of a car unnecessary. The neighbourhoods would become more pedestrian friendly and car dependency would decrease, because the inhabitants could walk in order to fulfil some of their everyday needs.

Less motorised traffic would also lead directly to less greenhouse gas emissions. Despite the planned increase in urban density, it seems that the majority of the existing roads would not need to be enlarged with additional car lanes. On one hand, most of the residential roads are by far not yet utilised to the maximum. On the other hand, together with the aforementioned new network of ways for pedestrians and bicycles, the introduction of an efficient public transportation system (e.g. busses or trams) would reduce the expected impact of individual motorised traffic caused by the suggested population



Figure 5: Optimisation proposal for the analysed 1 km² in Al Mawalih, based on the student work of Khoula Al Salmi (black = existing buildings; dark grey areas = redensification/multi-storey housing; hatched areas = new public and commercial functions; light grey = new pedestrian network, trees, and green recreational areas). (Source: Khoula Al Salmi and Alexander Kader, 2014)



Figure 6: Optimisation proposal for the analysed 1 km² in Mabeila, based on the student work of Ahmed Al Hatmi (black = existing buildings; dark grey areas = redensification/multi-storey housing; hatched areas = new public and commercial functions; light grey = new pedestrian network, trees, and green recreational areas). (Source: Khoula Al Salmi and Alexander Kader, 2014)



Figure 7: Optimisation proposal for the analysed 1 km² in Al Hail North, based on the student work of Safa Al Shukairi (black = existing buildings; dark grey areas = redensification/multi-storey housing; hatched areas = new public and commercial functions; light grey = new pedestrian network, trees, and green recreational areas). (Source: Khoula Al Salmi and Alexander Kader, 2014)

increase. This could become an attractive alternative to the automobile use in order to reach other parts of the region. New social and commercial functions — such as playgrounds, shops, cafés, and other leisure facilities — would have to be integrated into the residential building structures in order to support the public spaces (see Gehl

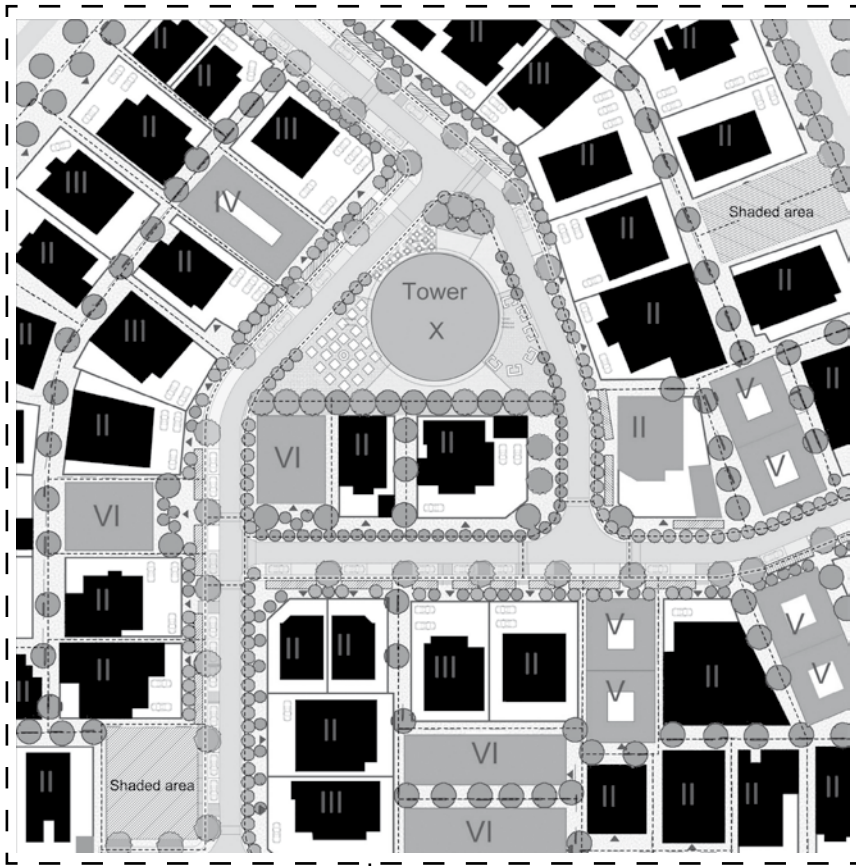


Figure 8: Exemplary area of the optimisation proposal for the analysed 1 km² in Al Mawalih, based on the student work of Khoula Al Salmi (black = existing houses; grey = new mixed-use buildings; dotted black line = new pedestrian and bicycle network; hatched rectangles = shading elements for pedestrians). (Source: Khoula Al Salmi and Alexander Kader, 2014)



2004). Local conditions and cultural habits should be incorporated, and different ways of living together should be made possible with new public uses.

Among other interventions, buildings with significant public functions could be integrated at strategically important positions in order to represent the newly supplemented functions in the most sophisticated way. Thus, the representative new buildings would encourage the inhabitants to make use of them as much as possible. They could become dominant landmarks and lend an individual character to each area.

The street spaces could be converted into more pedestrian-friendly environments by reducing the width of car lanes, increasing the pedestrian walkways, and adding trees or other measures of shading for the pedestrians. Furthermore, bicycle lanes could be inserted. In order to offer shorter ways for the inhabitants, in some areas the identified existing narrow free spaces between building plots could be activated for the already mentioned pedestrian network proposed to be integrated into every neighbourhood (see Gehl 2011).

Trees, park areas, and other green spaces could provide shade for pedestrians and space for recreation. They could also improve the area's microclimate and reduce solar overheating caused by the paved surfaces. All greenery could be watered with treated wastewater from the households nearby (see Gehl 2011). Photovoltaics could partially supply the electrical energy for the quarter. The photovoltaic panels could be installed on the buildings' roofs as well as on top of sun-shading elements of the new urban furniture. This measure would reduce the fossil-fuel-based conventional electricity production. On an architectural level, improvements to the existing buildings' insulation standards would be necessary, as would other interventions such as implementing exterior sun-shading elements for all sun-exposed windows. All new buildings implemented during the densification process would have to follow the principles of sustainable architecture and climate adaptation. Additionally, they would have to respect the individual conditions of the site and the local culture. These design proposals and the elaborated general guidelines aim to provide suggestions for the long agenda of actions necessary to transform the Gulf region's existing urbanised areas into socially and ecologically sustainable environments.

A higher urban density would not only be beneficial ecologically and socially for the inhabitants, it would also be much more economically beneficial for the land owners than before, due to the new possibility of constructing significantly larger buildings with more floor area to be sold or rented. The city government would benefit economically because, on a per capita basis, there would be a reduction in the number of roads and other infrastructure to be built and maintained; in case of a reform of the existing layout plans, many previously unused open spaces along the roads could be developed.

Further studies

The data calculations and field studies of the present stage of this research are based on student work and analyses conducted in April, 2014. The approximated values of the present study could be verified in further studies and site visits with a more refined approach.

In order to encourage a better monitoring of the urbanisation process, repetitive analyses could help to determine in which direction and at what acceleration the city quarters are currently developing. Furthermore, it would be important to conduct additional analyses and comparative studies of other suburban sites in Oman and the other Gulf countries. Finally, it would be useful to cooperate with the respective planning authorities regarding possible implementations and the mentioned adjustment of the planning regulations.

Alexander Kader

is Associate Professor of Urban and Architectural Design at the German University of Technology (GUTech) in Muscat, Oman. He has graduated at Polytechnic University of Milan in 2000 in the field of architectural and urban design with the degree „Dottore di Architettura“. His research focus lies on energy-efficient design methods for architecture and urban planning. Prior to working in Oman, he taught at the Institute of Sustainable Settlement Planning at the Technical University of Braunschweig, and at the Anhalt University of Applied Sciences. In addition, he has worked as an architect and urban designer for more than ten years. Contact <alexander.kader@gutech.edu.om>

Climate-Sensitive Urban Design, a Response to Urban Form and Local Culture

Carolina Hernández Galeano

Klimagerechter Städtebau – eine Auseinandersetzung mit Stadtform und lokaler Baukultur

Klimagerechter Städtebau für eine nachhaltige Stadtentwicklung sucht nach Lösungen, die die Aufenthaltsqualität im städtischen Außenraum erhöhen, und sowohl den Energieverbrauch als auch den Verbrauch natürlicher Ressourcen verringern. Ein Schwerpunkt dieses Beitrags liegt in der Auseinandersetzung mit Kriterien für einen nachhaltigen Städtebau in extremen Klimazonen, wie z. B. Maskat/Oman. Das schnelle Stadtwachstum hat dort bisher wenig auf die klimatischen Besonderheiten Rücksicht genommen und durch importierte Leitbilder städtebauliche Strukturen geformt, die sowohl die kulturellen Eigenheiten vernachlässigen als auch wertvolle Ressourcen erschöpfen. Klimagerechter Städtebau wird hier anhand einzelner Kriterien als Beitrag zu einer nachhaltigen Stadtentwicklung diskutiert im ökologischen wie auch im kulturellen Sinne. Klimagerechter Städtebau ermöglicht physische Strukturen für hohe Lebensqualität in den Städten.

Introduction

The most urgent challenges facing the world today are globalisation, climate change, and resource consumption. These challenges also encompass issues regarding uncontrollable urban growth, economic social and cultural shifts, and sustainability.

Recently, sustainability has been both tackled from different perspectives and been given special attention from the urban realm. The concept of sustainable cities and sustainable urbanism are well-established terms, widely discussed since 1990s, with the United Nations Conference on Environment and Development (UNCED) introducing the concept of sustainable development into planning primarily through the Agenda 21 frameworks. Since then, several investigations have been carried out to define what the optimal form should be for a city for it to be considered sustainable (Ben-Hamouche 2008; Zetter & Watson 2006; Burton 1996; Jenks & Jones 2010). Determining which urban form affects the sustainability of a city more than others, however, is a complex issue.

Sustainability, seen from the urban context, not only depends on the physical characteristics of the urban form (such as its size, shape, land uses, and configuration and distribution of open space), but also on conceptual dimensions such as the environmental, social, and economic situations. In regard to the environmental dimension, the current designs in extreme climate regions – such as those which are hot-arid – are generally not yet determined by climate factors but, instead, rely on technology.

Considering the effects of globalisation, rapid economic development, urbanisation, and climate change, urban forms must be responsive to climate. The need to provide climate-sensitive criteria to overcome increasing degeneration in the quality of urban life is growing. Such criteria should not only address environmental and urban dimensions, but the local and cultural contexts as well, so as

facilitate the creation of comfortable environs and open spaces that are both closely connected with the local culture and sustainable.

This article explores the question of how and in what ways climate-sensitive urban design contributes as a response to urban form and local culture. It seeks to identify possible ways in which a new planning approach, one which integrates climate criteria, can address sustainability in extreme climate regions.

The following section introduces the role of climate-sensitive urban design in addressing sustainability, with a particular focus on hot and arid climate regions located along seashores. It moves on to discuss how to integrate climate sensitivity into planning practices, and how it relates to lifestyle and local culture. The next section explores Muscat as a case study, depicting the substantial differences and concerns regarding the traditional urban patterns and current planning practices. This is followed by a discussion of the linkages, and the importance of caring about climate-sensitive criteria in planning processes in order to achieve sustainability. The article is based on lit-

Figure 1: Traditional vs. imported patterns



► **Figure 2:** Mutrah area of observation



erature review and a field study conducted in the city of Muscat in 2012.

The role of climate-sensitive urban design in addressing sustainable urban development

Globalisation has brought different effects into urban development. One effect that can be clearly noticed is the modification of urban tissue leading to a series of environmental impacts such as energy consumption and urban climate (Zetter & Watson 2006).

The increasing dependence on fossil fuels has led to an intense reliance on private transport, producing a severe urban sprawl. In turn, high building technology, air-conditioning systems, and new isolated building typologies have also generated variations in urban patterns and, likewise, have produced modifications in environmental conditions and the quality of open spaces, specifically at the neighbourhood level. Therefore, the search for sustainable urban forms should be undertaken in order to decrease such unfavourable impacts (Zetter & Watson 2006). Due to the effects of these unfavourable impacts on cities, there is an increasing demand for providing climate-sensitive criteria to overcome the increasingly uncomfortable quality of urban life.

The role of climate-sensitive urban design in addressing sustainable urban development means to create solutions that reduce energy use and maximise outdoor space comfort while also reducing the consumption of natural resources in a way that takes into account and makes use of the local climate and conditions (The Grove 2011). In this manner, climate-sensitive structures contribute to sustainable urban forms and subsequently to more livable cities.

Climate-sensitive urban design brings an opportunity to rethink urban planning. Its goals are to bring direct benefits to urban livelihood and to support the design of urban

structures that are capable of responding to the specific local climate. With global climate change in mind, it aims to create urban environs with healthier living conditions by reducing energy demands for cooling, heating and transportation.

One approach to achieving this goal is the configuration of the built and non-built environment. Many scholars (Johansson 2006; Oktay 2002; Edwards & Turrent 2000; Givoni 1998; Emmanuel 2005) highlight that the main factors to address, when deciding to make an environmentally responsible intervention, are the local climate and the environmental impact of the local built structures; likewise, the orientation of the streets and urban form are also crucial factors that affect urban environmental conditions. In other words: the modifications of environmental parameters (such as wind, air temperature and humidity) in urban areas are generally shaped by the urban landscape and influence the comfort of the inhabitants, the energy consumption, and the urban quality in general.

In hot-arid regions located along seashores, which tend to have high humidity values throughout the year, the design should aim to improve indoor comfort and to mitigate the stresses caused by such harsh climates on people outdoors. The reviewed literature on climate-sensitive design (Johansson 2006; Oktay 2002; Edwards & Turrent 2000; Givoni 1998; Emmanuel 2005) inferred that for hot and dry areas located along seashores: (1) a compact urban form of moderate density helps to provide adequate shading without compromising airflow; (2) in hot and dry areas located along seashores, it is important to provide basic services and neighbourhood facilities at a walking distance; (3) in regard to open spaces and greenery, these should be small and dispersed inside the city, while extensive open areas should be avoided as they gain and retain heat; and (4) adequate landscape and the maintenance of existing vegetation in the built-up areas help to improve the environment by reducing air temperatures and filtering dust.

References

- Bajic-Brkovic, M. & Milakovic, M. (2011) "Planning and designing urban places in response to climate and local culture: A case study of Mussafah District in Abu Dhabi". In: *Spatium*/25, p. 14-22: Serbia.
- Ben-Hamouche, M. (2008) "Climate, Cities, and Sustainability in the Arabian Region: Compactness as a New Paradigm in Urban Design and Planning". In: *International Journal of Architectural Research*, vol 2, p. 196-208, Massachusetts
- Burton, E. (1996) *The Compact City: A Sustainable Urban Form?* London: E & FN Spon.
- Byrne, J. (2011) "Climate-sensitive design". In: *The Grove – Environmentally Sustainable Design (ESD) Fact Sheet 3*. Available at: <http://thegrovecorridor.com/wp-content/uploads/2011/03/ESD-Sheet-3-Climate-Sensitive-Design.pdf> [accessed December 30, 2012].
- Edwards, B. & Turrent, D. (2000) *Sustainable Housing: Principles & Practice*, London: Taylor & Francis.
- Emmanuel, R. (2005) *An Urban Approach to Climate Sensitive Design: Strategies for the Tropics*, London: Taylor & Francis.

When reviewing the above, climate-sensitive urban design considerations can be seen as enablers that influence our behavioural patterns within the city, our use of energy for cooling or heating buildings, and the way urban public, open and green spaces are created and used.

The integration of climate-sensitive criteria into planning and its adaptation to lifestyle and cultural contexts

Adapting planning to local contexts is paramount for creating sustainable environments. This not only encompasses adapting to the environmental context, but also to the local culture; in other words:

“Urban forms cannot be considered ‘sustainable’ in the full sense if they are not acceptable to people as places to live, work and interact” (Jenks & Jones 2010, p. 105).

Hence, attitudes, local culture, and the behaviour of people towards space must be also taken into consideration. In this regard, it is argued that the loss of the spatial identity and character of cities is usually due to economic development and the pressures of globalisation, which tend to produce uniform environments that marginalise tradition in preference to urban models that are alien to the local culture (Bajic-Brkovic & Milakovic 2011). This situation is not unknown in the Middle East, especially the Gulf countries where the rapid economic development resulting from the exploitation of non-renewable natural resources such as oil has led to rapid urban development, one that is particularly influenced by western models. This has produced a change of identity, one in which the traditional systems of urbanisation and local culture have faded against the imported models, and in which climate criteria are not a major factor in the decision-making (see Figure 1).

The design strategies used in urban projects in the region, regardless of the location, are taken too lightly and simply use the same design criteria of different climate zones. As a result, not only is the quality of urban life threatened, but an overconsumption of natural resources also arises. Unlike with the traditional settlements, where climate issues were taken into consideration, today’s spatial practices barely take notice of climate factors. The challenge for future urban development is to reflect the given cultural setting in a corresponding, spatially-adapted design that merges the culturally rooted sense of place with climate-sensitive criteria.

However, the implementation of climate-sensitive criteria requires the integration of diverse processes that not only shape the physical setting, but also encompass political and technical processes that enable connections between users and places. In this sense, an integrated urban planning which considers the spatial integration along with the integration of different sectorial policies and the establishment of a robust institution is needed in order to create a city that assures high quality of life.

Muscat – meeting the challenge

Muscat is the capital of the Sultanate of Oman; it is also the seat of government and largest city in the

Governorate of Muscat. At the time of the 2010 census, the population of the Muscat metropolitan area was 734,697. The metropolitan area spans approximately 1,500 km². Following the discovery of oil in Oman in the late 1960s, the process of economic development led to increasing, unprecedented urban sprawl (Germeraad 1990). Several concerns have risen due to this fact. The urban sprawl, the fragmentation of the urban tissue, the reliance on cars, and the pressures of globalisation have led the city to gradually lose its identity and urban character. Like other cities undergoing rapid growth, today Muscat faces complex challenges that must be addressed if favourable living conditions are to be ensured for all residents. The problems are obvious, and the challenges that need to be addressed are discernible to the naked eye when one moves around the open spaces and streets of the city. The low urban and population density, for example, as well as the neglect of open space, which has gone from being considered an integral part of the urban fabric to being the space leftover between buildings.

The issue of open space and its climate response

The issue of open space is of particular interest in the GCC region, as it has been neglected totally by urban planners, architects, and citizens alike. Open public space in the Islamic Omani society is not easy to understand, as the cultural and social dimensions are influential. Likewise, open space in such a harsh climate is a difficult issue to deal with.

Parks played a role in transforming the dynamic of traditional urban life. Reliance on cars led to the planning of neighbourhoods and roads in accordance to the distances. Roads became wider and of first necessity. Due to the great importance of the streets, they have come to represent a high portion of the open space. The streets, however, possess neither spatial diversity nor are they built to either a human scale or in response to the climate.



References (cont.)

- Germeraad, P.W. (1990) Open space in human settlements: the lesson from the Islamic tradition. Universität Wageningen. Available at: <http://agris.fao.org/agris-search/search/display.do?f=2012/NL/NL201274044477.xml;NL2012074118> [accessed January 21, 2013].
- Givoni, B. (1998) Climate Considerations in Building and Urban Design, Hoboken, NY: John Wiley & Sons.
- Jenks, M. & Jones, C. (2010) Dimensions of the Sustainable City 1st edition. Dordrecht, Netherlands: Springer. Available at: <http://www.springer.com/life+sciences/ecology/book/978-1-4020-8646-5> [accessed January 29, 2013].
- Johansson, E. (2006) “Influence of urban geometry on outdoor thermal comfort in a hot dry climate: A study in Fez, Morocco”. In: Building and Environment/41(10), p. 1326-1338.
- Khalaf, R.W. (2012) “Traditional vs. modern Arabian morphologies”. In: Journal of Cultural Heritage Management and Sustainable Development/2(1), p. 27-43.
- Oktay, D. (2002) “Design with the climate in housing environments: an analysis in Northern Cyprus”. In: Building and Environment/37(10), p. 1003-1012.
- Zetter, R. & Watson, G.B. (2006) Designing Sustainable Cities in the Developing World. Farnham, UK: Ashgate Publishing, Ltd.

Figure 3: Narrow street at a human scale in Mutrah

Figure 4: Al Khoud area of observation. Patchy growth



However, social activities occur in spaces designated for cars, such as parking places.

The construction of buildings as isolated objects often leads to the creation of unused vacant spaces which, due to the lack of facilities for leisure and recreation, are later appropriated by the residents. Such spaces, however, display no response to the climate nor do they offer comfortable conditions to inhabitants.

Qurm Park and Naseem Garden are two major green spaces in Muscat. Some of their physical characteristics do not play an important role in the culture, and they by themselves do not meet the needs of the whole population in terms of area and accessibility. These spaces are intended for the performance of itinerant activities and major events taking place in the city.

The big, hard surfaces retain heat and are unusable on days in which activities are not taking place. Parks, greenery, and open areas are needed in the city, however, due to the constant population growth and the environmental constraints that development entails. Given the extreme climate, in open spaces it is necessary to ensure the comfortable conditions vital to inviting urban life and social interaction.

Components of traditional urban form and its response to climate

In Muscat, the traditional urban forms are most recognizable in the traditional quarters of the capital, Mutrah and Muscat, where the social dynamics of the open spaces still reflect the essence of the traditional urban life. Mutrah is a unique quarter in Muscat, where the open spaces maintain the characteristics of the traditional Arabic city, with narrow alleys, traditional souks, a symbolic cornice, forts and mosques. Density and compactness are the predominant characteristics of the urban configuration, essential conditions to alleviate discomfort conditions in areas where humidity is high and constant (see Figure 2, and Figure 3)

Contemporary development and the way to sustainable urban patterns

The application of imported Western design concepts has started to shape the urban form, as has the introduction of a modern lifestyle, which has created new needs.

These needs, such as vehicular accessibility, together with the need for building forms that exclude noise, traffic and heat from the living spaces, as well as the scaling up of

Figure 5: Vacant spaces between buildings and open spaces are neither environmentally friendly nor hospitable



production, shops and service facilities, started to be considered permanent aspects of life and could therefore not be denied (Germeraad 1990; Khalaf 2012).

Al Khoud is located west of the airport, next to the mountains and farther to the south of the coastline. Considered one of the urban expansion areas in Muscat, its current development pattern shows a patchy growth with low density, which leads to wastelands, leftover spaces, and vacant lots between buildings; such open spaces are neither environmentally friendly nor hospitable for the inhabitants (see Figure 4).

The lack of public spaces and greenery leads to a particular behaviour in the people of this area: the built environment, which does not provide favourable climate conditions for its inhabitants, leads them to perform transitory activities mostly based on the use of the car (see Figure 5).

Given these trends, it is important to foresee measures that not only meet criteria for climate responsiveness, but that also trace criteria to achieve objectives towards a better and sustainable urban performance.

Other considerations

The comparison between the different areas of Muscat shows that the greater the compactness and density, the more likely the scenario of stationary activities taking place in open space (see Figure 6 and 7). The better the conditions of the urban geometry, the more comfortable the environment for the pedestrians; building wider streets and isolated buildings, however, does not generate privacy but, instead, segregation and a waste of land.

There is an important lesson to be learned from the old, traditional urbanisation patterns in this regard. Looking backwards does not mean to be going backwards; rather, it means learning from experience in order to build a liveable city.

Discussion and conclusion

Linking challenges and opportunities

As outlined in the introduction, this article seeks to identify possible ways in which a new planning approach that integrates climate criteria can address sustainability in extreme climate regions.

The article highlights the opportunities that climate-sensitive urban design can tackle regarding the challenges that cities face in extreme climates. By linking the climate considerations to the challenges Muscat faces, it is possible to build comfortable environments for inhabitants.

This leads to the conclusion that the traditional urban components performed and responded better to the climate; the current building trends in the city are not only leading to a fast and sprawling land consumption, but also to the construction of alien spaces that have no relation to the climate or culture.

To make climate a criterion in planning does not limit the practice or use of hi-tech solutions; looking at climate-sensitive criteria – such as urban form, the provision of facilities at walkable distances, small and disperse green

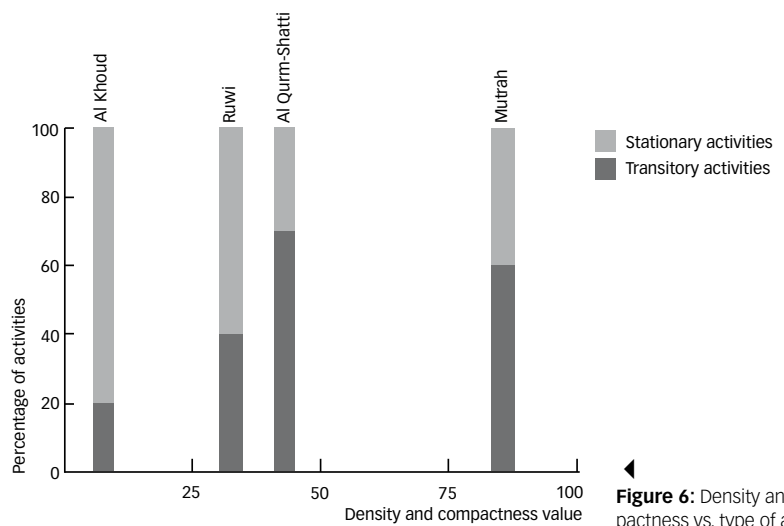


Figure 6: Density and compactness vs. type of activities

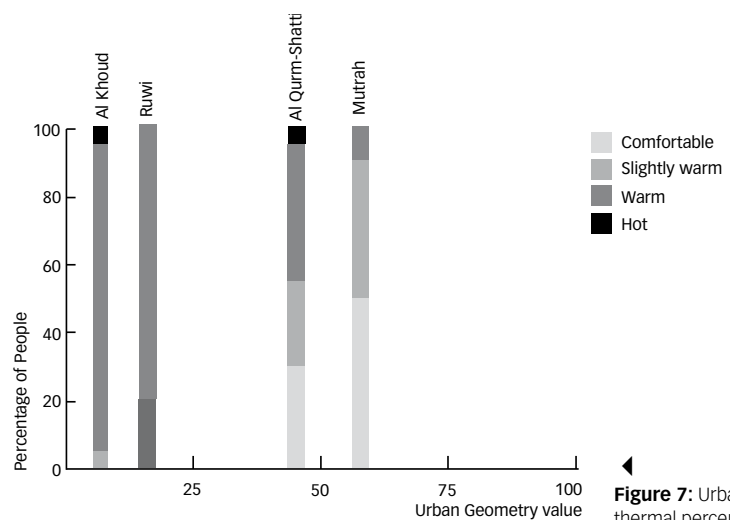


Figure 7: Urban geometry vs. thermal perception

and public spaces, and special building considerations often yields sustainable solutions that are also acceptable by the current standards. Therefore, reconsideration of the traditional components of traditional Arab urban form, and their integration in the present urban planning and design practices, would ensure a cultural continuity with the rooted urban history of the region (Ben-Hamouche 2008).

As stated before, the implementation of climate-sensitive criteria requires the integration of diverse processes that not only shape the physical setting, but also encompass political and technical processes that enable connections between users and places.

In the case of Muscat, as in other cities facing climate challenges, the technical processes such as building regulations should be reviewed in detail so as to determine technical gaps in regards to climate response. Sustainability is therefore, the result of the integration of actions and technical processes that produce a comprehensive planning and urban design that respond to both climate and the local context.

Finally, it is worth noting that Muscat has the opportunity to differentiate itself from other capital cities in the Gulf – in regard to becoming a liveable city in the region – were it to undertake a humane and people-driven vision for city life.

Carolina Hernández Galeano

is an Architect and Urban Manager. She currently works as climate change consultant at the Colombian Low Carbon Resilient Program (LCRD) funded by USAID, advising the Colombian Ministry of Housing in the implementation of climate mitigation and adaptation measures into its land and housing policies. She acquired international experience in Europe, Middle East, Asia and South America, and extensive knowledge in the area of climate sensitive urban design and its application in the planning of resilient urban settings. She completed an MSc in Urban Management at Technical University of Berlin, Germany. Contact: <carolina8211@gmail.com>

Lessons from the GUTech ECOHAUS Outlook for Establishing Sustainable Building Practices in Oman

Nikolaus Knebel

Lernen vom GUTech ECOHAUS. Perspektiven für eine Förderung nachhaltiger Baukultur in Oman
Im Zuge der rapiden Urbanisierung in Oman entstehen innerhalb kürzester Zeit eine große Menge an Gebäuden, die den Anforderungen an energieeffizientes Bauen in heißen Klimazonen nicht gerecht werden. Bei einer weiterhin wachsenden Bevölkerung und zurückgehenden Ressourcen wird hier die Energiekrise von morgen gebaut. Auch Oman ist mit dem Paradox konfrontiert, dass nachhaltiges Bauen dort, wo es am dringendsten benötigt wird, oft am schwierigsten zu etablieren ist. In diesem Kontext steht ein vom Research Council of the Sultanate Oman, von der GUTech (German University of Technology in Oman) sowie von Sponsoren gefördertes Projekt für ein beispielhaftes Nullenergiehaus, das von einem Team aus Lehrpersonen, Studierenden und Fachkräften zusammen mit einem lokalen Bauunternehmen realisiert wurde. Der Autor reflektiert den Prozess des Entwerfens, Planens und Bauens dieses Projekts und stellt Fragen zu den Aspekten, die einer nachhaltigen Baukultur förderlich wären: Umweltbewusstsein, Bauregeln, Technik, Bildung sowie eine lokale Identität von Architektur.

Acknowledgements:

The ECOHAUS project received a grant from The Research Council of the Sultanate of Oman (TRC). Further funds came from the German University of Technology in Oman (GUTech). Various individuals and companies supported the project with cost-based or free-of-charge services, materials, and products: Matthias Rudolph and Christian Frenzel of Transsolar; Eike Roswag and Christof Ziegert of ZRS; Saif al Amri, Consultant; Ahmed al Tamimi, Ali al Adawi; Andrew Burton Anderson, landscape architect; Wilfried Hofmann; Vinay Chandran; Gulf Perlite; Oman Solar Systems; Oman Concrete Products OPC/Poncebloc; BASF; DOKA, REHAU; myWindow; BAUER Nimr; CAPAROL; Technical Trading Company (TTC); Gyproc; Oman Cables; hansgrohe; conlux; ReadyMix Muscat.

Figure 1: The ECOHAUS employs passive design strategies to reduce heat gains and enhance the building user's comfort: a compact volume, optimal orientation of all large openings to the north and towards the prevailing wind direction, a highly protective 600 mm cavity wall.

Despite the ongoing building boom, the building sector in Oman, as in other Gulf States, is in a crisis. Buildings are interfaces between human beings and the environment. They mediate social, cultural and climatic relations, which are conceptualized through appropriate designs and materialized with efficient technologies. However, these basics of building are out of balance and today the urban as well as architectural solutions applied throughout the region are insufficient responses to the challenges of housing a rapidly rising population in a harsh climate with increasingly limited resources.

There is not one single solution to this crisis, however, the first steps towards finding a way forward are being taken. One of them is the ECOHAUS project of the German University of Technology in Oman (GUTech) that was completed on its campus in 2014. This paper reflects on the lessons learned from designing, planning, building, and operating this pioneering net-zero-energy building, in order to prepare the ground for a next round in the discourse on establishing a sustainable building culture in Oman and the region. Four aspects turn out to be essential: awareness, technologies, policies, and skills.

Awareness

Some crises are tangible – and therefore productive, while others are not. For example, facing severe health risks from living in heavily polluted environments or being confronted with unaffordable energy costs are concrete problems that lead to a public problem-awareness and eventually to solution-development on technological and societal levels. The crisis of the building sector in the Gulf States, however, is rendered invisible. It is hidden behind a screen of artificially low-energy costs. Once this screen is lifted the discrepancy between the environmental requirements of buildings and their actual performance will be shocking. In order to mediate this situation and prepare for future realities it is necessary to raise public understanding of the problem of the inefficiency and inappropriateness of the currently built housing stock - despite the apparent intangibility of this crisis.

The Research Council (TRC) of the Sultanate of Oman therefore launched the "Oman Eco-Friendly House Design Competition" in 2011 and granted five universities in the country a fund to develop and construct a net-zero-energy residential building. The aim of this initiative is as much on the technological side as it is on the communicative aspects of offering the public access to the eco-houses so that they can directly experience different solutions for energy-efficient homes, which are already built and in use and not only on paper. Over the past three years, we presented our ECOHAUS project to many different target groups; to the general public through articles, talk shows, TV, films, websites, facebook, TED lecture, school visits, and guided tours; to professionals through exhibitions, fairs, written and live presentations; to ministries and municipalities through workshops, speeches, and direct talks; to academics through peer-reviewed papers, and conferences. There is almost no public platform that we have not presented the project on. Without exception the response is positive. We never experienced a denial about the need for change (as compared to, for example, the uphill battle on an agreement about climate change that



occurs in the US). Generally, the public in Oman is very open to the idea of a more eco-friendly life-style. Public awareness is not the issue.

The actual concerns are about applying the right technologies, which is less a question of knowledge but of knowledge transfer, because a more concrete obstacle is the availability of skills to implement an eco house. The real public concern is, of course, the costs, which in the end is a policy question.

Technologies

By-and-large the technological questions of how to reduce the energy-demand for building in the Gulf Region, both through passive and active strategies, are being answered. What remains, and seems to be controversial, is the question how to supply the energy. Surprisingly there is a strong hesitation about using solar energy, despite the obvious potential for it in the region.

A quick look at a map of global solar irradiance reconfirms the rather trivial observation that, e.g. in Oman, the sun shines very strongly throughout the year. There could hardly be a place with better preconditions to make use of solar energy. However, despite the recent decade's global wave in which generating electricity through photovoltaic panels – even in Nordic countries – has become an everyday practice, such devices are hardly found operational in Oman, not to mention that none of them are directly connected to the public grid.

As one of the first and very few buildings in Oman the ECOHAUS got exceptional permission from the authorities to feed the electricity that is generated through a 12.4 kWp-photovoltaic generator into – at least – the university's campus grid. The installing company conservatively estimated a yield of 18.000 kWh per year. However, monitoring the yield of the first six months of operation (from September to March) shows that despite the rather lenient maintenance frequency of a monthly one-hour cleaning session the yield has already reached 12.000 kWh. Hence, using photovoltaic panels to generate electricity in this region seems to be much more efficient than expected, despite the much talked about performance-lowering factors of too much dust settling on the panels or too high surface temperatures. At least for small residential housing units, which have a rather large roof area in relation to the total floor area, a zero energy balance seems to be clearly within reach.

Policies

Around the world, the discussions about sustainable building practices are moving from an early phase in which societal awareness had to be raised and technical feasibility had to be proven into a more established phase in which legislative and governance issues come to the foreground. For example, the influential global conference "World Sustainable Buildings 2014" was dominated by the topics of regulations, standards and certifications.

In Oman, however, this discussion is still at a very early stage, but calls for more sophisticated building regulations are raised regularly. As a matter of fact, there are already regulations for more energy-efficient building



practices in place since 1992, e.g. the Building Regulation for Muscat authored in that year, which until today is the legal basis for construction permits, sets targets for the insulation of roofs at a heat transfer coefficient $U = 0.57 \text{ W}/(\text{sq.m.} \cdot \text{K})$, and for external walls at $U = 0.741 \text{ W}/(\text{sq.m} \cdot \text{K})$. In practice, unfortunately, these values are not met, because the common wall assembly of hollow concrete blocks can only reach a U-value of around 1.6 to 2.0 $\text{W}/(\text{sq.m.} \cdot \text{K})$. When the common building practice is set in relation to the legally expected standards it shows an underperformance of factor 2 to 3. In other words, most buildings do not comply with the building regulations.

In the ECOHAUS project we have demonstrated how a highly insulating building envelope can be built, even from recyclable and natural materials. Our cavity wall with layers of a pumic-aggregate mixed light-weight concrete block, a perlite loose-insulation infill, and self-produced compressed earth blocks reaches a U-value of 0.18 $\text{W}/(\text{sq.m.} \cdot \text{K})$ - almost "Passivhaus" standard. Of course, such an effort is not cheap.

Yet, subsidizing the consumption rather than the conservation of energy does not lead to progressive practices, and this situation calls for quick responses and

▲ **Figure 2:** The ECOHAUS is not only a testing ground for technical applications but also a vehicle for communicating the necessity and possibility of building eco-friendly and energy-efficient homes. The project was presented at all levels of society, from children to students, professional, academics, ministers, and to the general public. It will eventually be an open house in which materials, products, and principles are exhibited and discussed.

Figure 3: The ECOHAUS is one of the first buildings in Oman that generates as much electricity from photovoltaic panels as is consumed by the house's base loads and cooling loads. The yield from the photovoltaic panels are highly efficient and more than fulfil the expectations. ▼





▲ **Figure 4:** Insulation is a major factor in reducing heat gains. The outer wall of the ECOHAUS is built from light-weight concrete blocks, the core layer is a loose infill of perlite, a granulated volcanic rock. The inner layer is made from compressed earth blocks.

new standards. A legislative process is a long-lasting and challenging struggle of finding the right balance between economic viability, social acceptance, technical feasibility as well as ecological appropriateness of the rules and regulations that influence the building of people's homes. Such processes are complex, and risky. For example, the recent quick changes in policies on green buildings in Europe are not a good precedent for governance. First, policies promoted subsidizing feed-in tariffs for photovoltaic-generated electricity and then, when the expenses got out of control, an abrupt change of regulations cut down on these costs, thereby throttling a young, expanding green industry. It is hard to imagine that such experiments in policy making would happen in the stability-oriented Gulf States. Rather, the subsidized low-energy costs are likely to remain in place for the time being. Other incentives to promote more efficient buildings need to be sought. If it is not the energy costs, what else could then drive the real estate market and the building industry into applying the necessarily more sustainable designs and construction methods? There might be one factor with which the higher investments into more energy-efficient building practices could be traded-off against another financial benefit for an investor: building density. Almost all

▼ **Figure 5:** For the ECOHAUS we selected local materials that perform best in the situation where we needed them. For example: mud bricks are a fantastic material for interior walls because – besides being fully recyclable – they have a high thermal mass, can buffer humidity, offer great acoustic qualities, and generally contribute to healthy air quality.



plots in the urban fabric of Oman, as in other Gulf States, are underused. Especially for the private residences the floor-space-index is so low that it is sometimes hard to speak of the settlements as urban at all.

At the recent "Qatar Green Building Council's" 2015 conference in Doha the idea of whether a better building quality and performance should lead to a higher permitted usage of a plot was discussed. Thus space-efficiency on an urban level and energy-efficiency on an architectural level could be tackled at the same time, without directly touching the sensitive issue of energy-subsidies. Effective policies must be based on evidence of the effectiveness of the activities they intend to trigger, - projects like the ECOHAUS can contribute to delivering data on that, and such policies they should be carefully woven into the fabric of the existing socio-economic context and cannot just be imported.

Skills

A building culture rests on and grows with the capacities of each of the many stakeholders in the building process. Clients, consultants, contractors, craftsmen, companies, as well as the city's administration need to individually and collectively progress in order to achieve the ambitious goals of a sustainable building culture. Such efforts, however, must be rewarded with tangible benefits and profits otherwise they will not happen.

Unfortunately, the interaction of the stakeholders of the building process in Oman is not conducive to progress. Clients who are willing to build a house have no incentive to invest into an improved design or a better construction method beyond the current low-level practice, because energy costs are so low that the investment into conserving energy through higher building costs cannot be offset against the long-term operational costs of the house. Therefore, consultants, architects, and structural as well as mechanical engineers are not challenged by ambitious commissions and their services stagnate on a low-level, which compared to the progress in other parts of the region means that apart from some high-level prestige projects carried out by international contractors the local architectural scene is actually falling behind. This skills problem may not exist for large companies who have the ability to train their workforce. Rather it exists for the villa building section, which constitutes a huge section of the market.

On site, contractors operate only with foreign labourers, mainly from South Asia. For an ambitious client or consultant of smaller projects this means that during a building process unskilled labourers have to be managed; thus details beyond the simplest ways of assembling materials and products are impossible to achieve. Educated craftsmen, if available on site at all, remain working on the qualification level from their home countries, because due to the nature of their labour contracts they have no perspective of rising beyond their current employment status and following an upward career path. In this context of a stagnant construction industry, companies have little incentive to introduce progressive and sustainable products. The building culture in Oman is thus caught in a vicious circle around the smallest common denominator, which means

design concepts and construction methods keep on being repeated - despite their known insufficiencies.

By involving students and graduates into the ECOHAUS project right from the beginning and throughout the project, the German University of Technology in Oman (GUtech) started a knowledge and skills transfer about sustainable building methods to the next generation of architects. Instead of handing over the ECOHAUS project to an international consultancy and contractor we kept the project in-house, and rather involved local small-and-medium enterprises such as a window-installer or furniture-maker so that they would learn on and from the project.

Recently, the associate professors at the university's Department of Urban Planning and Architecture trained a group of architects from the Muscat Municipality on sustainable architecture and urban design principles. Even further than that, a vocational training programme for local builders and contractors would be a necessary addition to upgrading the in-country skills. Future building practices need not remain on the almost medieval level where they are today, but could develop into a progressive, perhaps more pre-fabrication oriented industry that offers appreciable jobs to the local workforce.

Identity

Over the last 30 years the architectural has discourse focussed on the creation of cultural identity in order to regain local specificity from the proclaimed universality of modernism. While traditionally, hard factors like climate conditions, material availability, or locally acquired knowledge and skills formed a regional culture and thus identity in buildings, the past decades' discourse starting with postmodernism was very much driven by soft factors like e.g. historic or artistic referencing of images or the evocation of and playing with meanings. Traditions, or rather the display of traditional elements thus seemed to be something that could be invented. Engineering happend more on cultural imagery than on buildings.



▲ **Figure 6:** The core team that built the ECOHAUS consisted of project leader Associate Professor Nikolaus Knebel, GUtech-graduates Rumana Al Othmani and Rowa Elzain, as well as students Amna Al Sharji, Aya Al Balushi, Nujaida Al Maskari, and Shaharin Hossain. Former Associate Professor Martin Werminghausen was an essential team member during the design and planning phase.

In the Gulf States, the period of societal modernization generated by the oil-boom began just when postmodernism started to reign in the architectural scene. From this moment on none of the hard factors that used to shape buildings in the region mattered anymore, and anything could be designed - and built. Today, most urban buildings are either generic towers, banal villas, or very image-driven designs, in which randomly applied and non-functional crenulations or meshed shadings give an arabesque look to buildings and infrastructure.

Building a new generation of energy-efficient buildings is a chance to turn this trend around and re-root the architecture of the region in the hard factors of climate-adaptiveness, space-efficiency and formal necessity. The actual effectiveness of a building in creating comfortable indoor conditions in the harsh climate of the region while using only minimal means, would then be put in the foreground again. The focus would shift from appearance to performance, and this new form of functionalism would by its very nature be a regionalism. Architectural identity would no longer be construed, but constructed and constructive.

▲ **Figure 7:** A group of 30 GUtech students of the 3rd semester learned about energy-efficient building methods and developed the early design concept.

Nikolaus Knebel

is an architect, and Associate Professor of Architectural and Urban Design at the German University of Technology in Oman (GUtech). He is the leader of the university's EcoHaus project, a pioneering net-zero-energy building in the Arab region. Nikolaus Knebel studied at TU Berlin, NUS Singapore, and TU Delft, worked for Rem Koolhaas in Rotterdam, and Toyo Ito in Tokyo, as well as the Bauhaus Dessau Foundation and the German Technical Cooperation (GIZ) in Ethiopia. For the last 15 years he taught architectural design studios in various countries, and also practiced independently and in partnerships, with the built projects being awarded with prizes, published internationally, and exhibited widely. He authored books on architectural and urban issues featuring Berlin, Tokyo, Addis Ababa, as well as other hotspots of global urbanisation. Contact: <nikolaus.knebel@gutech.edu.om>



Beyond the Gulf Metropolises.

The Urban Transformation of Salalah in the Arising Post-Oil Era

Steffen Wippel

Abseits der Golf-Metropolen. Urbane Transformation in Salalah mit Blick auf die Nachölzeit.

Salalah im südlichen Oman steht weitgehend außerhalb des Fokus der globalen Aufmerksamkeit, die aktuell die Städte der weiteren Golfregion auf sich ziehen. Der Ende der 1990er Jahre eröffnete Containerhafen, der erweiterte Güterhafen, die anschließende Freizone und das expandierende Industriegebiet sowie jüngst errichtete oder noch im Bau befindliche „integrierte Tourismuskomplexe“ und neue Wohn-, Freizeit- und Einkaufseinrichtungen führten jedoch zu einem beträchtlichen Wandel der Stadtlandschaft. Im Kontext nationaler Entwicklungsstrategien zur Vorbereitung auf die Nachölzeit globalisierte sich Salalah erheblich. Die zahlreichen abgeschlossenen, gesicherten und zugangsbeschränkten Großbauvorhaben trugen zu einer beträchtlichen räumlichen Fragmentierung der Küstenebene, in der Salalah liegt, bei. Umfassende Stadtplanung wurde zunehmend von Masterplänen für einzelne Bauprojekte von Großinvestoren abgelöst. Gleichzeitig werden die lange Zeit kaum bekannte Stadt und die entstehenden Großprojekte zunehmend vermarktet, nicht zuletzt mit Verweis auf die Weltoffenheit und Prosperität der Region in der fernerer Vergangenheit, während das südarabische architektonische Erbe der Stadt zunehmend verfällt.

Introduction

Contemporary study of Gulf cities was sparse until the turn of the millennium, when the number of works on the emerging global cities of the Gulf, first and foremost Dubai, started to explode. However, with the opening of the country after the 1970 coup, Omani cities began attracting some attention, mostly from German geographers and town planners. This, above all, concerned greater Muscat, a place with a longer urban tradition than other Arabian Gulf cities (yet outside the Gulf in the proper sense), and was essentially based on the seminal work done by Scholz (1990).

A few articles also touched upon Salalah, the rapidly transforming second city of the Sultanate and the summer (and at times permanent) residence of the ruler, in the remote southern province of Dhofar, which had long been under uncertain Omani suzerainty. Besides further work by Scholz (1977) and his associates (notably Janzen/Scholz 1980, Janzen 1980) more broadly covering the incense trade and nomadism in the wider region, Wegmann (1985/86, 1986) published two short articles in *Trialog* on the post-Dhofar War development planning that included hopes for heritage conservation in the old parts of the city centre. At that time, Salalah had already developed from an agglomeration of dispersed villages with a few thousand inhabitants into a regional centre of approximately 70,000 people. Despite the rapid spatial densification and expansion experienced, however, there was only limited economic development.

The extended studies on urbanisation in the Gulf region that came up in the early 2000s concentrated on the main centres with their worldwide-admired mega-projects and branding strategies. Only rather recently did a more general interest arise in the second-tier range of Gulf cities, which also show an intriguing history and important recent urban development, and constitute important hubs in specific global and regional flows. In this context,

after a more than two-decade gap in academic coverage, this article intends to analyse the more recent urban and economic transformations of Salalah, which started in the late 1990s. After a short review of the city's development until the 1980s, this paper will also present its current urban and economic evolution. Then it will turn to the globalisation of Salalah in the context of national post-oil strategies, and study the physical fragmentation of the urban landscape. Finally, it will point to the shift from overall structural planning to individual master plans, and discuss the marketing of the new Salalah versus the selective conservation of the old.

Salalah's development until the 1980s

In the distant past, the narrow, ca. 50-km-long coastal plain where Salalah is located already included ports that were major entrepôts for maritime trade between the Indian Ocean and Mediterranean worlds and, more importantly, for incense exports from the hinterland. Zufar (Al Baleed), now an archaeological site surrounded by the Salalah agglomeration, as well as Samaharam, also in ruins, and Mirbat, today a small town, both to the east, were places of contact and exchange connected to the world (see Janzen/Scholz 1979, Barrault 1999, Wippel 2013a). In the course of the 19th century, the region came under the formal rule of the Sultanate, but under the reign of Sultan Said ibn Taymur (1932-70) it was largely cut off from the wider world. During the Dhofar civil war, which broke out in the mid-1960s, the fights and in particular the barbed wire that surrounded the entire city at that time restricted the possibilities of urban development and expansion.

In a mixture of "winning hearts and minds" campaigns including important social measures, on the one hand, and military oppression with massive help from abroad, on the other, Sultan Qaboos succeeded in pacifying the region by the mid-1970s. The first measures, however, were taken inside the delimited city area from 1970 on, with the fence continuously placed farther outside and finally torn

References

- Anonymous (1981) "Tiefseehafen Mina Raysut, Oman". In: *Hochtief Nachrichten*/54 2, p. 2-34., Essen.
- Barrault, Michèle (1999) *Regards Dhofar*. Vesoul: Editions Michel Hetier.
- Costa, Paolo M. (in collaboration with Stephen Kite) (1994) "The Architecture of Salalah and the Dhofar Littoral." In: Costa, Paolo M.: *Studies in Arabian Architecture*, p. 131-153. Aldershot/Brookfield: Ashgate.
- Deffner, Veronika/Pfaffenbach, Carmella (2013) "Integration auf Zeit für ein Leben in Transition: Gesellschaftlicher und politischer Umgang mit den Herausforderungen einer segmentierten städtischen Migrationsgesellschaft in Muscat (Oman)." In: *Raumforschung und Raumordnung*/71 3, p. 233-245, Berlin/Heidelberg.
- Janzen, Jörg (1980) "Die Nomaden Dhofars/Sultanat Oman: Traditionelle Lebensformen im Wandel." Bamberg: Selbstverlag, Fach Geographie an der Universität Bamberg.

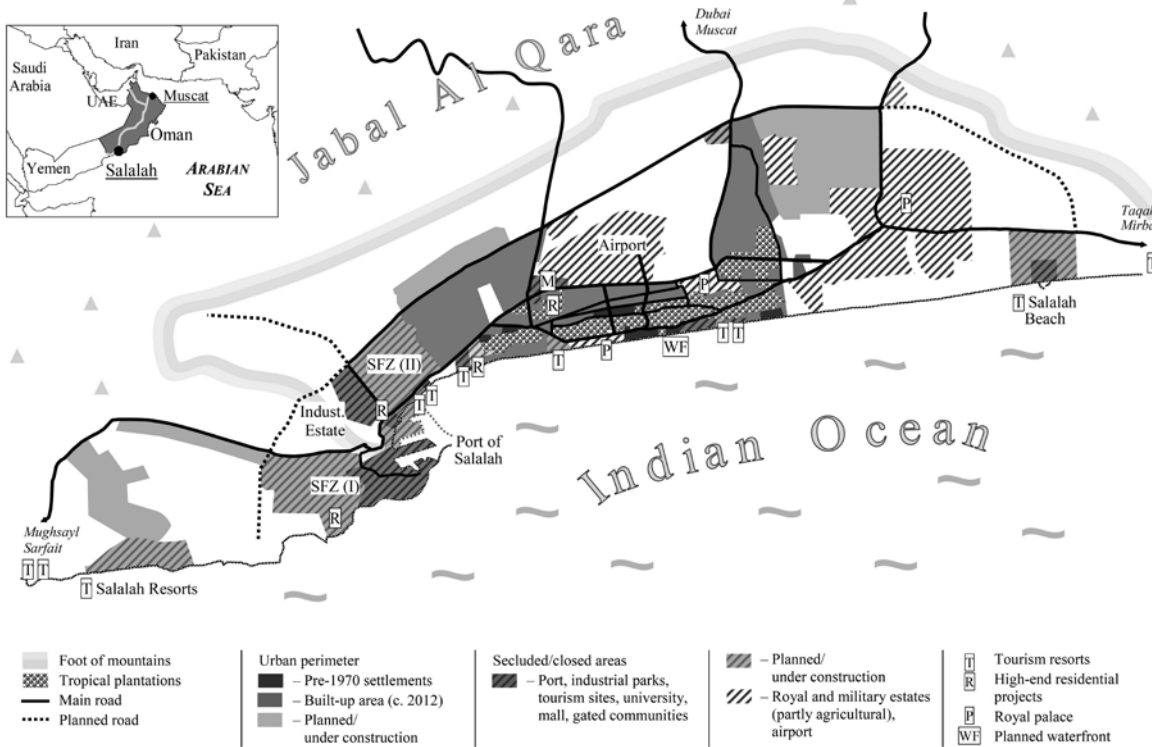


Figure 1: Map of Salalah (Source: Steffen Wippel 2013)

References (cont.)

- Janzen, Jörg/Scholz, Fred (1979) 'Die Weihrauchwirtschaft Dhofars (Sultanat Oman).' In: Haimayer, Peter/ Meusburger, Peter/ Penz, Hugo (eds.): Fragen geographischer Forschung, Festschrift des Instituts für Geographie zum 60. Geburtstag von Alfred Leidlmaier, p. 501-41. Innsbruck: Selbstverlag des Instituts für Geographie der Universität Innsbruck.
- Mershen, Birgit (2007) 'Development of Community-Based Tourism in Oman: Challenges and Opportunities.' In: Daher, Rami Farouk (ed.): Tourism in the Middle East: Continuity: Change and Transformation, p. 188-214. Clevedon/Buffalo/Toronto: Channel View Publications.
- Ministry of Housing, Directorate General of Housing, Dhofar Province (1998) 'Revision of Salalah Structure Plan (1995- 2015), Phase 5, Final Structure Plan.' Muscat.

down in 1984 (see Wegmann 1986, Scholz 1977). The port of Raysut, to the west, experienced its first development into a modern cargo port (see Anon. 1981, Barrault 1999) mainly used for the import of construction material and consumption goods; likewise, a workshop area was established for small producing enterprises, and foundations were laid to establish a new city centre.

However, it seems that — due to the concentration of development efforts on the most-populated areas in northern Oman, but also to the persisting reciprocal mental reserve — not much effort continued to be made for the economic advancement of the region.

Contemporary urban and economic development of Salalah

This situation only started to considerably change in the second half of the 1990s (for more details, see Wippel 2013a). The initial and most important step in transforming Salalah was the construction of a big deep-water container port at the western end of the agglomeration. It opened in 1998, and since then has been further expanded in several stages. It rapidly became an important hub, called on by the biggest container ships on the main east-west sea trade route between East Asia and Western Europe and on feeder lines to India, the Gulf, and down the East African coast. After a few years, the port was catapulted among the 30 to 40 most important container terminals in the world and reached an annual throughput of 3.7 million container equivalents by 2012.

Currently, both the cargo and container port are being expanded further. The port also pushed activities in the nearby Raysut Industrial Estate, already established a few years earlier. In addition, an adjacent area of 20 km² was allocated for the Salalah Free Zone. Its first stage opened in 2006 for export-oriented (mostly heavy) industries. Currently, the second stage, which is intended to attract

international firms in a wide range of sectors from manufacturing through services to logistics, is under preparation.

Other transport infrastructure is also making progress. The inland road to Muscat, fully bituminised since 1982, is in the process of being upgraded to motorway standard. Another continuous coastal road to the north opened in early 2014. The Salalah ring road has been largely completed, and intra-urban thoroughfares will soon become partially intersection-free. In the long-term, it is planned to connect Salalah to the railway, in preparation, from Muscat to the UAE, with an additional link being envisaged to Yemen. Most important is the current enlargement of the Salalah airport, which will raise the capacity to 1-2 million passengers in the first stage. This will allow for sea-air freight in connection with the port, as well as for welcoming international charter flights.¹

This (as well as the current adding of a larger cruise terminal to the port) will, first of all, help to boost tourism. A few years ago, Salalah had only two hotels that met up-scale international standards. In the late 2000s,

1 Besides national flights, only a few regular flights currently connect the airport to India and the Gulf, supplemented by two weekly charter flights from Sweden and Germany in winter.

Figure 2: Port of Salalah (Source: Steffen Wippel 2009)





▲
Figure 3: Salalah's new city centre
(Source: Steffen Wippel 2009)

construction work was started on the extended "integrated tourism projects" (ITCs) of Salalah Beach (covering another 20 km²) and Mirbat Beach, both to the east of the city (see Nebel 2014, Wippel 2013a, 2014). The first stages have now been inaugurated, and the next ones are in the making, with some delays owing to the influence of worldwide economic and regional political crises. In the end, each ITC will comprise four to five luxury hotels, a huge number of privately owned villas and apartments (nearly 3000 units), and a large range of amenities, including manifold shopping and leisure facilities. Since about 2010, additional tourism projects have been announced: they include another large-scale tourist scheme, an ecological lodge, and a family resort to the west as well as some medium-sized sites in more-central seaside parts of the agglomeration. These developments not only address overseas visitors for the winter season, but to a large extent national and Arabian Gulf tourists, who want to enjoy the only mild monsoon climate on the Peninsula, the rest of which is sweltering in the summer months. After several years of decline, the number of arrivals during the khareef season once again topped 415,000 in 2014 (www.omantourism.gov.om, accessed 18/11/ 2014).

Over the last two decades, residential areas expanded further, especially to the north-east, in a zone that Wegmann (1986) already described as being designated for further development. In the 1970s, more modest small scale schemes that covered the basic needs of the local population were constructed in central parts of Salalah,

▼
Figure 4: Salalah Gardens Mall under construction
(Source: Steffen Wippel 2010)



later spacious, well-to-do, villa-like quarters, and now, here, especially in the North-East, housing blocks complete these earlier structures.

On the large plot that provisional planning had reserved in the centre of Salalah in the mid-1970s for a new downtown, recent multi-storey structures and the central landmark, the Sultan Qaboos Mosque, inaugurated in 2009, now complement the first buildings that popped up after the mid-1980s.

Yet, more striking are some other urban projects such as

- the first gated community of apartments, which opened in a central area in 2012,
- similar high-end residential complexes in the pipeline,
- and the first full-fledged mall, a shopping, tourism, leisure and business complex at the northern edge of the inner city, opened gradually since 2013.

The cornice between the old palace and the Al Baled excavation park was already built several years ago. A master plan exists for erecting a modern tourism- and leisure-oriented waterfront there, with hotels, residences, shops, and restaurants, but it has not yet been realised. Nevertheless, a decree has already stipulated the expropriation and relocation of residents and the demolition of their houses, and the national budget has also allocated funds for this purpose.

The globalisation of Salalah in the context of national post-oil strategies

These recent urban developments entail a considerable globalisation of Salalah, despite its peripheral situation in the national and Gulf context. Notably, its container port has now become an important place of call in the worldwide web of commodity flows. The export-oriented production of the newly established industries goes to markets in the Western world and around the Indian Ocean. Most projects include international (Western, Arabian, Indian) capital. Tourism is still very much geared towards the Arabian Gulf states, but also shows an increasing inflow of guests from Western countries and South Asia. Whereas, until the 1970s, Dhofar was characterised by strong outward migration, especially to the more advanced, smaller Gulf emirates, Salalah soon experienced an important influx of international migrants, particularly for the booming construction sector. Today, 56% of the city's population of about 250,000 are non-citizens, far above the national average (National Centre for Statistics and Information 2012). Besides Western and Arabian experts, this mainly encompasses a varied labour force of South Asian origin.

These developments are to be comprehended in the context of nationwide endeavours to prepare the country for the post-oil era. For a long time, Oman's economic development depended on the exploitation of its oil resources. The national Vision for Oman 2020, published in 1995, called for the broadening of the Sultanate's economic base. Trade and tourism constitute two important sectors of this strategy. To push the economic opening of the country and the geographical diversification of its partners,

Oman intended, first, to evolve into an international transport hub, notably for maritime trade.²

The development of transportation infrastructures was combined with industrial development, which, as epitomised in the big methanol and petrochemical plants in the Salalah Free Zone, is still quite hydrocarbon-based. In addition, the country also decided to open up for international tourism. Omani authorities had long been reluctant to develop this sector, in fear that the country was socio-culturally (as well as infrastructurally and logistically) unprepared (see Mershen 2007). Consequently, their tourism strategy focuses on selective high-end tourism, and they are only gradually becoming ready to target middle-income visitors, too. Parallel to these nationwide efforts, there were growing concerns about a regionally more balanced economic development, especially since the publication of the first regionally broken-down human development report in 2003.

With this, Salalah is trying its best to adapt to and integrate into the current processes of globalisation. Yet, even if the projects established in the city generate large incomes and job opportunities, their strong outward-orientation hampers the development of downstream and upstream linkages with local and national industries. At the same time, similar development strategies pursued by other countries in the wider region will increase competitive pressure considerably.

The physical fragmentation of the city

On the local level, the establishment of the numerous large-scale projects, and the integration into the global economy that they stimulated, has also had important fragmenting effects on the physical landscape of the city (compare Scholz 2004: 221-258 from a conceptual perspective). Since the urban fence was dismantled, the city has extended considerably beyond the small villages that now form the nuclei of today's Salalah. While the city has taken care to preserve the tropical plantations in central areas, the agglomeration now fills the major parts of the plain between the Indian Ocean and the Dhofar mountain ranges. Even today, spread across the agglomeration are vast enclosed royal and military estates that occupy dozens of square kilometres, including the airport, which hinder continuous urban development to the north of the centre. In contrast, the new projects are often located at an obvious distance from the inner city. They thereby contribute to the spatial and functional fragmentation of the wider agglomeration. Notably, the port and free zones are urban fragments that are much more integrated into global circuits than with their terrestrial hinterland; more than 95% of the containers in the port, for example, are in transit and do not pass the port's landside limits. More recent developments, however, are on the way to fill the gaps between these sites and existing residential and industrial areas; such developments have even started to expand beyond the port to more-elevated spots further west. At the same time, project sites, many of them still in the planning stage, are popping up in the city's more central areas.

Traditional regional architecture was secluded and included gated yards (Costa 1994). The early social housing reproduced such buildings surrounded by high walls

(Wegmann 1986, Stracke et al. 1983), as private villas in the agglomeration still do today. Characteristically, the newly established projects are enclosed and monitored, too. But they also introduce a new quality, as they are no longer individual properties of limited size or areas for governmental use. They occupy vast areas, are located on ground removed from public use, and are built by profit-oriented developers (sometimes in public-private joint ventures). The schemes are completely privately owned, controlled, and regulated. Entering them means passing a number of physical, mental, and economic barriers. This is true of the specific extraterritorial statuses of the container port and its adjacent free zone, which occupy large fenced areas that need preliminary authorisation to access. ITCs, gated communities, and similar residential areas — now multi-family condominiums — also display a well-defined rupture between inside and outside. Guards, if not gates and fences, limit access. On the other hand, the new seaside schemes increasingly hinder access to previously public beaches and to open grazing grounds along the shore; the upgrading of the central urban coastal strip into a gentrified waterfront will also greatly affect the population living there.

The ITCs in particular also placate the anxieties of Omani authorities. They minimize unwanted influences by keeping inbound tourists and more permanent residents away from Omani society. With their comprehensive commercial and social infrastructure, ITCs even simulate complete townships. For those enjoying access, they ensure a neat and clean surrounding, and no unwanted social encounters. In contrast to "normal life", these places promise paradisiacal locations designed for leisure and holidays. Inside their perimeters, they give Western travellers as well as Omanis and Gulf sojourners the opportunity to live one's own life in exclusivity and seclusion. Perceived dangers, especially in times of "global terror", are another excuse for control and securitisation, but in point of fact, threats, such as terrorism, aggression, and thievery, are rather low in Oman. Despite the spatial fragmentation and seclusion in the Salalah agglomeration, 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 (which, however, will slowly phase out). Yet, there is too little data to say much about the social segmentation of the city.³ Salalah does not display large zones of informal settlements and no-go areas, as we find in most cities on the global forefront. However, protests in the course of the Omani Spring — and Salalah's were among the largest and longest in the Sultanate — showed great discontent with prevailing socio-economic

2 Similar major port (-cum-industry) projects in Sohar and Duqm opened in 2004 and 2012 respectively.

3 If results for Muscat (Defner/Pfaffenbach 2013) are transferable, this means differentiation is less by national origin than by socio-professional status.

References (cont.)

- Nebel, Sonja (2014) 'Tourism and Urbanization in Oman: Sustainable and Socially Inclusive?' In: Bromber, Katrin/Krawietz, Birgit/Steiner, Christian/Wippel, Steffen (eds.): *Under Construction: Logics of Urbanism in the Gulf Region*, p. 55-69. Farnham/Burlington: Ashgate.
- National Centre for Statistics and Information (2012) 'Statistical Year Book 2012.' Muscat.
- 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.' In: *Die Erde*/108, p. 23-74, Berlin.
- Scholz, Fred (1990) 'Muscat, Sultanat Oman: Geographische Skizze einer einmaligen arabischen Stadt.' Berlin: *Das Arabische Buch* (translated and revised as: *Muscat, Then and Now: Geographical Sketch of a Unique Arab Town*. Berlin: Verlag Hans Schiler (2014)).
- Scholz, Fred (2004) 'Geographische Entwicklungsforschung: Methoden und Theorien.' Berlin/Stuttgart: Gebrüder Borntraeger.

Figure 5: Private Al Jannat mansions at Salalah Beach (Photo: Steffen Wippel 2010)



4

As a possible alternative, they had considered a further linear expansion along the east-west axis and compact development within the existing urban envelope.

5

The 1975 plan had already envisaged new areas for urban expansion to the north-east and the north-west.

6

In the course of the 2011 demonstrations, the Ministry of National Economy, too, was dismantled, and the current five-year plan (2011-15) has become largely obsolete.

References (cont.)

- Stracke, Ferdinand/Kulke, Rüdiger/Auer, Gerhard et al. (1983) 'Houses for Salalah.' Braunschweig: Lehrstuhl + Institut für Städtebau, Wohnungswesen und Landesplanung, Technische Universität Braunschweig.
- Wegmann, Reinhard (1985/86) 'Hoffnung für die Altstadt Salalahs.' In: *Trialog*/8, p. 14-17, Darmstadt.
- Wegmann, Reinhard (1986) 'Entwicklungsplanung für Salalah.' In: *Trialog*/9, p. 36-39, Darmstadt.
- Wippel, Steffen (2013a) 'Développement et fragmentation d'une ville moyenne en cours de mondialisation: le cas de Salalah (Oman).' In: *Arabian Humanities*/2, Sanaa. <http://cy.revues.org/2599> (open access).
- Wippel, Steffen (2013b) 'Oman and the Indian Ocean Rim – Economic Integration Across Conventional Meta-Regions.' In: Wippel, Steffen (ed.): *Regionalizing Oman: Political, Economic and Social Dynamics*, p. 159-183. Dordrecht/Heidelberg: Springer.
- Wippel, Steffen (2014) 'Port and Tourism Development in Oman: Between Economic Diversification and Global Branding.' In: Wippel, Steffen/Bromber, Katrin/Steiner, Christian/Krawietz, Birgit (eds.): *Under Construction: Logics of Urbanism in the Gulf Region*, p. 101-118, Farnham/Burlington: Ashgate.

conditions and also addressed some anger about the execution of ITC projects.

From the overall urban structure plan to individual project master plans

Wegmann (1986) described the gradual development of planning mechanisms in the course of the 1970s. In 1975, the Salalah Town Plan marked the start of more systematic urban planning. Finally, the first Salalah Structure Plan, which envisaged the development of the city for the next 20 years, was published in 1983. The Supreme Committee for Town Planning (SCTP) was set up in 1985 and — under the auspices of the Minister of National Economy — formulated general town-planning policies within the context of development plans at the national level. Planning settlements, including urban areas, in the entire Sultanate was the responsibility of the Ministry of Housing. Consequently, after the preparation of a regional development plan for Dhofar as well as sub-regional land-use plans, the ministry took up the task of revising the existing Salalah Structure Plan (see Ministry of Housing 1998).

In 1998, the new plan for the years 1996 to 2015 presented the preferred long-term urban development strategy and zoning regulations. Among different options, the planners chose a "disjointed incremental development".⁴ It was suggested that the city's future expansion should be more balanced, particularly towards the inland, with a specific focus along the proposed bypass road and in the north-west direction.⁵ The first ten years of plan execution were assigned to "growth acceleration and consolidation", whereas subsequent phases should go into "growth diversification". The plan already envisaged some fundamental, capital-intensive developments, such as the construction of a new port (which already was underway at the plan's date of publication), the establishment of new industries, and the expansion of tourism. In the meantime, however, new realities have largely superseded this

encompassing urban structure plan. Over the last ten years, ad hoc planning for individual project sites seems to have increasingly replaced the thoroughly reasoned and concerted development process. In coordination with Omani authorities, project developers and service agencies established separate master plans for further port and free zone expansion, gated residences, and large tourism zones. In contrast to the difficult accessibility of official plans, models of future ITCs are ubiquitously published and exhibited. Often, the Omani state is implicated on both sides, as public bodies directly manage some major projects or enter joint ventures with international companies. Accordingly, the state has a minority stake in the port authority, together with the international and national private owners. Muriya, a joint venture of the Egyptian Orascom company and the government-owned Omran, is developing Salalah Beach, whereas other major projects have joint private Omani and Gulf interests.

Nationwide, projects are often pushed by tenders, which are mostly issued according to their individual progress and requirements. This became a main task of the SCTP in its last years, alongside implementing a few specific infrastructure projects. But even infrastructure planning increasingly shifted from the committee to national ministries and, finally, in 2012, the SCTP was dissolved and most of its remaining powers assigned to the Ministry of Housing.⁶ With that, an opaque structure of overlapping and interpenetrating responsibilities, institutions, and policy levels has developed. Many decisions are made far away from the urban agglomeration, by central ministries and special state agencies (for example, the Public Establishment for Industrial Estates), and are part of national sector development strategies (as is tourism). The new, urgently needed long-term planning framework for Salalah has not yet been adopted, and the Ministry of Housing does not seem to be accelerating this process. However, since 2010, the Oman National Spatial Strategy has been in the making. This strategy is intended to provide an



Figure 6: Salalah Beach showroom model (Photo: Steffen Wippel 2009)

overall framework for the Sultanate's sustainable, regionally balanced socio-economic development for the next thirty years, up to 2050.

Selling the new Salalah and the selective conservation of the old

A decade or two ago, Oman was virtually unknown in the world. However, the Sultanate managed to set up widely noticed marketing and branding campaigns to create a positive image among potential tourists and business partners worldwide (see Wippel 2013b, 2014). They emphasise the varied landscape as well as the country's deep history (compared with other Gulf sheikhdoms); in economic terms, Oman essentially underlines its cosmopolitan past as a commercial power in the Indian Ocean, which makes it a proficient hub for contemporary trade and tourism. For Salalah, there is no specific branding campaign or authority. But on the one hand, the history and nature of Dhofar has made an important contribution to the national image. In particular, Salalah's tropical orchards and, for Gulf addressees, the summer monsoon season give the area a touch of exoticism. The emphasis on the historical frankincense trade serves to illustrate Dhofar's age-old integration in global flows. In the more recent "Brand Oman" campaign, the region's frankincense and fertility have constituted one of four alleged essences of Oman's culture for centuries. On the other hand, local projects are intensely marketed. The port and free zone also point to Salalah's historical links to the world and its unique position in the Indian Ocean. The tourism and residential schemes are sold as secluded, relaxing, and safe spaces that offer all comforts. In particular, the new edifices (including the mall with its souk area) are vaunted as convenient combinations of new and old. These descriptions refer to purported traditional design and atmosphere, together with modern amenities and furnishing. However, this blend of styles mostly turns out to be quite contemporary, with houses basically consisting of concrete structures, decorated with some pinnacles and wooden planking, more open to the outside than inward-oriented. Even more, decorative elements represent an invented hybrid "Orient" – somewhere between India and the Mediterranean – rather than the local architectural heritage.

The praising of the region's history also unfolds in the care for archaeological sites: especially the Al Baleed area in the centre of the city, together with the Frankincense (and Marine) Museum at the same location, are the most visited places in Oman. In contrast, the material legacies of the more recent history are still neglected. Costa (1994) has pointed to the specificities of the disappearing South Arabian limestone architecture, but Wegmann (1985/86) already deplored the state of the buildings in the old parts of the city and recommended at least a minimal conservation. The last Salalah Structure Plan, too, called for the protection of historical buildings and their future restoration (Ministry of Housing 1998: q). Since then, seemingly, no efforts have been made in this direction and the state of the houses has become even worse. Only a minuscule number of buildings have been restored and opened for tourists (such as the old Taqa fort outside the city). Interview partners in public entities did not show much enthusiasm for saving this cultural heritage; nor did they recognise the places' touristic value. Wegmann's



▲ **Figure 7:** Salalah Beach villa (Photo: Steffen Wippel 2012)

arguments that the most recent past tends to be ignored or repressed, because Omanis are more ashamed than appreciative of it, still seems true.

Conclusion

Salalah is one of the "secondary cities" in the Gulf countries that, for a long time, did not attract much public and academic attention. The new container and extended general cargo ports, the adjacent free zone and expanding industrial area, the recently established or under construction integrated tourism complexes, and the new residential areas target national, regional and global carriers, investors, tourists, and residents. The current transformation of the city is embedded in national endeavours to realise post-oil development strategies and integrate the country firmly into the world economy. Thus, this long remote but now strongly globalising southern Omani city has experienced a remarkable spatial extension since the late 1990s, whereas large parts of the agglomeration have become insular areas reserved for specific trade and industrial or tourism purposes. The physical fragmentation of the city is caused by the rapid proliferation of extended enclosed and often securitized areas with limited public access going far beyond the exclusiveness of inward-oriented individual housing. At the same time, planning is shifting from the outdated comprehensive structure plan to discrete measures for individual project sites. The intense marketing of some of these on-going projects highlights their seclusion as well as their attractive combination of the old and the new. In contrast, the preservation of the distinct South Arabian architectural heritage seems to be neglected in favour of vast archaeological excavation of areas from a more distant, less problematic past.



▲ **Figure 8:** Traditional house in Old Salalah (Photo: Steffen Wippel 2010)

Steffen Wippel

is currently Professor for Contemporary Middle East Studies at the Department of History, University of Southern Denmark at Odense. Until recently, he carried out research at the Zentrum Moderner Orient ("Centre for Modern Oriental Studies") in Berlin on the port cities of Salalah and Tangier, funded by the Federal Ministry of Education and Research (code 01UG0713). The article draws on fieldwork and interviews in Salalah and Muscat in the years 2009 to 2012. Contact: <wippel@sdu.dk>; <steffen.wippel@t-online.de>

Reactivation of Inner-Oman Oasis Settlements. Agriculture and Water Management as a Starting Point for Resilient Development in Al Buraimi

Jesús Salcedo Villanueva

Belebung von Oasenstädten im Binnenland von Oman. Landwirtschafts- und Wassermanagement als Ausgangspunkt für eine zukunftsfähige Entwicklung von Al Buraimi

Dynamische Urbanisierungsprozesse haben vielfältiges Forschungsinteresse an strategischen Eingriffsebenen und Steuerungsmöglichkeiten geweckt. Am Beispiel der Stadt Al Buraimi und ihrem Umland wird die Modernisierung einer ehemals auf Landwirtschaft beruhenden Ökonomie nachgezeichnet. Der Niedergang der Landwirtschaft hängt eng zusammen mit unangemessenem Wassermanagement und den landesweiten Leitbildern für Entwicklung und Fortschritt. Aus der intensiven Auseinandersetzung mit komplexen Zusammenhängen vor Ort wird ein strategischer Ansatz für die zukünftige Entwicklung dargelegt, der den Trends wirksam begegnet und die Potentiale Al Buraimis für eine zukunftsfähige Stärkung der Landwirtschaft als Bestandteil der lokalen Ökonomie aufzeigt.

Introduction

Urbanisation processes in inner-Oman settlements during the past 40 years have been characterised by particular economic situations and a fast rate. There has been a strong transition from rural and nomadic living conditions to a sedentary and urban environment; this has been promoted by the Omani government through a series of measures and policies that rely on fossil-fuel availability, investments in education, health, and employment, and the diversification of the economy. This has brought better living conditions to the Omanis, as well as a distinctly scattered and inadequate urban fabric in almost every city in the country as a consequence of a decades-old land allocation policy.

Al Buraimi, in northwest Oman, continues to grow, and the shift from agricultural-related economic activities to commerce and services has brought improvements to some aspects of the living conditions of nationals. As a consequence, however, land use is very heterogeneous and migration rates are escalating, while the scarcity of water, amongst other natural resources, now presents a major problem to agriculture and the future development of the region.

The research relies on first-hand qualitative sources: semi-structured interviews held with 9 governorate ministers, the Al Buraimi Chamber of Commerce (COC), the Municipal Council, as well as sub-departments of the Ministry of Agriculture (MOA), the Ministry of Environment and Climate Affairs (MECA), and the Public Authority of Electricity and Water (PAEW), amongst others. This is complemented by second-hand quantitative sources such as statistics from the National Centre for Statistics and Information (NCSI) and a review of the General Environmental Law from the Ministry of Environment and Climate Affairs. The results of the fieldwork are analysed within the frameworks and theories of resilience strategy as well as the current debate on Omani urban growth and development.

This article proposes that aside from the general phenomenon of urban scattering, the loss of primary activities within the city core and villages are the first step towards a long-term resilient solution. The study also claims that if development continues in the same manner, disparities of water availability according to geographical location in the city will accentuate rapidly and, likewise, the risk of water scarcity will rise continuously, thus worsening the living conditions as well as increasing the costs for service delivery.

Recently, much attention has been given to elastic buzz terms such as “sustainability” and “resilience” in the field of planning. They have been framed in countless ways, and used to the point of them losing much significance (Salcedo, 2015). Nonetheless, sustainability, as a guiding principle, has the virtue of encompassing aspects of the urban process in an ideal balance of economic, environmental, and social long-term solutions. A more recent term, resilience, is similar to this idea but grounded on both ecological and physical engineering sciences, albeit adapting characteristics into a term suitable for planning.

Resilience has a “rejection of equilibrium, an emphasis on inherent uncertainty and discontinuities, [and] an insight into the dynamic of interplay of persistence, adaptability and transformability” (Davoudi et al., 2012, p. 306). These characteristics can make up a framework that understands how “complex socio-ecological interdependencies work” (Porter, 1994). In other words, ecological cycles tend to be adaptive, but the urban-rural process can be diminished or improved by interventions in the field of planning. Resilience can be enhanced, sustained, or even lost (Salcedo, 2015).

Traditional management approaches emphasise optimality, efficiency, stability, risk management and control, blueprints, certainty, forecasting, and equilibrium, whereas resilient frameworks offer concepts and methods for freeing planning from this obsession with order and stasis,



◀ **Figure 1:** Map showing the distribution of the original aflaj system that fed into the different oasis and villages, interposed on today's urban fabric (Source: Author)

thus making planning more flexible, diverse, and adaptive (Salcedo, 2015). These characteristics bring out issues of justice such as the distribution of resources; for instance, planners can regard water management from a resilient perspective within intentionality of human actions (Leach, 2008). Planning interventions can make a subject (i.e., agriculture within water management) more or less resilient to any type of issues.

The current framework guiding development in the Governorate of Al Buraimi sees activities such as agriculture as the continued, long-term main source of employment, and allows for the existence of employment fuelled by external resources. This un-resilient development has undermined the subsidiarity principle of the Governorate, leaving the region on the verge of losing all primary activities and water availability at the same time.

Is resilience reachable?

The current paradigm of development that has shaped the urban fabric has replaced primary activities in the city centre with scattered services and governmental activities. The on-going development, with its business-as-usual attitude, constrains resilience in that natural resources are becoming harder and costlier to obtain every year. Furthermore, water availability in the Governorate is now a matter that is treated externally, thus the reliance on such a valuable resource is a threat towards development. If this isn't changed with a process starting at the fostering of primary activities, the region will undergo resource-scarcity problems in the long term which, in turn, will accentuate other issues related to the urban sphere.

The following chapter analyses how the modernisation process in the Al Buraimi oasis is heading in this direction, and looks at both the main issues concerning agriculture

and water availability as well as how the ministries and national regulations are fostering or constraining better conditions.

Origin and abandonment of the central oasis in Al Buraimi

The Buraimi oasis covers an area of about 6 km by 9 km and encompasses 9 settlements with historical associations (Petersen, 2009). Life in these settlements was possible because of the aflaj irrigation system employed across Oman, with which water was brought from the nearby Hajar Mountains through the use of channels. Naturally, water is infiltrated into the waterbed thanks to stationary rains that periodically bring a groundwater recharge. This geological feature allowed a centennial engineering technique to develop.

The aflaj are the watercourses, underground and open-surface, which transport water from the mountains' waterbed to the villages. These channels were built by tapping groundwater with a sub-horizontal tunnel that has a slope less than that of the groundwater (Abdel Rahmnn and Omezzine, 1996).

Al Buraimi originated because of the possibility of settling agriculture that arose with an aflaj system. Some of the first descriptions of the village and its surroundings by Western authors appeared around the 50s. Hamerton and S.B. Miles, in Petersen (2009), described Al Buraimi as a large town with twelve aflaj, each with an average length of 7 km (Thesiger and Stewart, 2008). These authors confirmed that the surrounding villages had economic activities that ranged from pottery making, weaving, and ironworking to camel trading and trapping, as well as the agricultural production of dates, alfalfa, oranges, mangoes, and root vegetables.

References

- Abdel Rahmnn, H. A. & Omezzine, A. (1996) Aflaj Water Resources Management: Tradable Water Rights to Improve Irrigation Productivity in Oman. *Water International*. [Online] 21 (2), 70–75
- Davoudi, S. et al. (2012) Resilience: A Bridging Concept or a Dead End? 'Reframing' Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does it Mean in Planning Practice? Resilience as a Useful Concept for Climate Change Adaptation? The Politics of Resilience for Planning: A Cautionary Note: Edited by Simin Davoudi and Libby Porter. *Planning Theory & Practice*. 13 (2), 299–333.
- Hamerton A. 1955. Captain Hamerton's proceedings at Sharjah, Byreemee and Sahor. Pages 91–95 in *The Buraimi Memorials*. (The British Memorials 2/37, Annex B). London: British Government Publications. [Reprinted Cambridge: Cambridge Archive Editions, 1987].
- Janzen, J. (1983) The modern development of nomadic living space in Southeast Arabia—the case of Dhofar (Sultanate of Geoforum. 14 (3), 289–309.
- Leach, M. (2008) Re-framing resilience: trans-disciplinary, reflexivity and progressive sustainability—a symposium report.

References (cont.)

- Miles S.B. (1877) On the route between Sohar and el-Bureymi in Oman. *Journal of the Asiatic Society of Bengal* 46: 41–60
- Morton, M. Q. (2013) *Buraimi: The Struggle for Power, Influence and Oil in Arabia*. London ; New York: I. B. Tauris.
- Petersen, A. (2009) 'Islamic urbanism in eastern Arabia: the case of the al-Ayn-al-Buraymi oasis', in *Proceedings of the Seminar for Arabian Studies. Papers from the forty-second meeting of the Seminar for Arabian Studies held in London*. London: Archaeopress. pp. 307–320.
- Thesiger, W. & Stewart, R. (2008) *Arabian Sands*. Revised edition. London: Penguin Classics.

The Al Buraimi oasis was a source of many products that were cultivated thanks to the aflaj system. Nowadays, the two main oases that are still part of Oman offer a mere glimpse of the splendour that the aflaj system once allowed to flourish (Salcedo, 2015). (Around 10 years ago, the water flow of the aflaj system was almost exhausted, mainly due to a rapid increase in water use in the surroundings.)

Without any clear representation by the Sultan in Al Buraimi, and due to the unstable rule of the Sheikhs resulting from the disputes between Abu Dhabi and Dubai, there was no foreign investment in petrol exploration. The feudal system was a chronic problem until the Al Buraimi dispute that ended with the clear recognition of borders between two governments, Trucial Oman (former UAE) and the Sultanate of Oman.

The events that preceded this dispute started with the Saudi's occupation of the central oasis in Al Buraimi, Hamasa. During that time the area received money and saw its market activities develop, but with the expulsion of the Saudis, even though the village itself was not destroyed the economy was left shattered (Morton, 2013). It is said that during this brief presence of Saudis in Hamasa, the villagers, who experienced better living standards through the Saudi investments, started to neglect their agricultural activities; this marked the path to the eventual decay of the Buraimi oasis and its agriculture. During that time, the Sultan in Muscat offered no relief to the villages in the Buraimi oasis for redevelopment; the aflaj system was left in an abandoned state, and even though the Wali of Buraimi and the British were collaborating to invest in Buraimi, the Sultan refused to cooperate financially with them (Morton, 2013).

This is the starting point of the polarisation in the economy of Al Ain in the UAE and of Al Buraimi in Oman (Salcedo, 2015). With the support of the Abu Dhabi Sheikh, the British invested in Al Ain, the aflaj was repaired, and the souq soon developed a thriving local economy; in Al Buraimi, on the other hand, the aflaj became almost abandoned.

Al Buraimi's water and agriculture challenges within urban issues

Besides the economic and political shifts since the 70s, the main factor that has shaped the spatial structure of cities such as Al Buraimi in Oman is the land allocation policy that was implemented in 1984. As part of this policy, the ministries plan new areas where development fits and then distribute local plots through a lottery system (MOM, 2014). There is no obligation to build on the plots and, consequently, a large amount of the plots that get distributed never undergo development.

When a new housing project gets approved by the Ministry of Municipalities (MOM) and is built on such a plot, the housing project will have electricity but must rely on water tanks for the storage of water provided by tankers as well as on septic tanks that are emptied regularly by the municipality; likewise, most such housing units suffer a lack of roads (PAEW, 2014; MOH, 2014; MOM, 2014).

The Public Authority for Electricity and Water (PAEW) faces similar problems, as water distribution has to be outsourced to private tanker companies that distribute drinking water to every household that is not serviced by the public network (PAEW, 2014). In the case of wastewater and solid waste management, the same scenario occurs



Figure 2 The abandoned aflaj in the central oasis (Source: Author)

(MOM, 2014). These infrastructure obstacles represent high costs for the municipality.

Regarding the challenges of agriculture, there are major disadvantages in the management of natural resources, in the groundwater-use for agriculture, in the scarcity of aflaj for the inner city, and in the overall management of the desalinated water coming from Sohar into Al Buraimi. These disadvantages in the water processes are quickly turning into a real threat, because of the possible future reliance on 100% desalinated water coming from external sources. Currently, 80% of the water used in Al Buraimi comes from the desalination plant in Sohar. Moreover, the gradual loss of agriculture has been driven by the economic opportunities in other economy sectors. This disadvantage is also linked to the scarcity of water in some areas, which is also the cause for many date plantations and oasis being in a decayed state.

Rapid urbanisation and the related increase in the demand for water are not the only causes behind the abandoned state of Al Buraimi's agriculture. The process that the country has undertaken since the 1970s to improve industry and provide better employment for Omanis as well as to foster a sedentary lifestyle for many nomads (Janzen, 1983, p. 292) is also the reason why a diversification of employment was introduced. This is reflected in contemporary Al Buraimi by the fact that only a few landowners still use their plots in the oasis to grow products. Most of the employed workforce consists of cheaper, expat workers, which is also a reason why locals have stopped getting involved in agriculture (COC, 2014). Migration laws also place many of the agriculture activities at risk, because the laws offer no long-term guarantees for the legal residency of migrants working for Omanis. If regulations get stricter, the primary sector will be placed under larger constraints.

Technological challenges

Authors such as Abdel Rahmnn and Omezzine (1996) describe problems that the traditional aflaj system has on contemporary agriculture. They claim that the manner in which water is distributed, owned, and rented is not competitive as most of the rights are in the hands of large owners. As a consequence, many people living from agriculture have to rent water rights. But the main challenges that agriculture faces are related to the lack of development in the distribution system in terms of efficiency (Salcedo, 2015). During irrigation, a lot of water is wasted through evaporation and overuse. One of the strategies proposed by these authors is the investment in better engineering technologies for irrigation and the transportation of water; namely, through the use of artificial pools to collect water as well as diversified cropping systems. All the agricultural activity could provide more opportunities for people and be more competitive in the Buraimi area. Furthermore, water should be stored in order to eliminate losses through field runoff and deep percolation, because through the conventional channels, large amounts of water get lost before reaching the farms. Even though the government encourages farmers to replace traditional irrigation systems with modern ones by bearing 75 per cent of the costs, very little has been done in the Governorate of Al Buraimi. This means that most of the farmers still rely on individual wells (and thus drain large amounts

of the groundwater) or still rely on the traditional aflaj system previously described. Neither is still suitable, in view of the current water scarcity problem.

Environmental law and water scarcity

The groundwater level in the city centre and the outskirts has changed drastically over the last three decades. Many claim that an over-exploitation of the aquifer due to wells and pumping for agriculture, as well as the construction of dams at the aflaj sources, are the main causes for the lack of recharging of the Al Buraimi oasis aquifer. It is true that some aflaj sources have been modified in order to have a water reserve in case of an emergency (MOM, 2014), but it is also presumed that these diversions of natural temporary water from the mountains to the city have not caused the groundwater level to sink. The MOM and MECA both claim that the groundwater level has diminished in proportion to the growth of the neighbouring city of Al Ain; water extraction at their side of the border has decreased the aflaj flow into the central Al Buraimi oasis. Unfortunately, there is no proof to sustain this claim. Whatever the reason, water scarcity is a current issue that affects both cities, and therefore also a possible international conflict that is still not being thoroughly evaluated.

In regard to the climatic aspects, there is data that can be used to explain why has the groundwater level has diminished. According to the National Centre for Statistics and Information (NCSI, 2015), the maximum temperatures recorded for Al Buraimi since 2002 have risen considerably. The last 5 years, for example, have been the hottest ever, reaching maximums of 48 C. Likewise, rainfall has been very irregular and scarce during the last five years. From 2002 to 2006, the lowest amount recorded was 36 mm of rainfall; and from 2007 to 2012, the lowest recorded was 12 mm. Moreover, the averages for these two periods are 67 mm and 38.6 mm. In terms of water resources, Al Buraimi is one of the hottest and most underprivileged in Oman.

The general environmental law that protects the country's water resources "prohibits the undertaking of any work which negatively affects the underground supply of the water table" (MECA, 2014). It is also stated that any activity or work that changes the direction or use of a falaj cannot occur without a license from the Ministry. But although the water resources are protected in a general manner, the law does have loopholes: some agriculture activities, for example, can easily acquire a permit for the extraction of groundwater with the use of wells. On a small scale, this causes no real problem to the waterbed; nonetheless, agriculture activities were still on the rise during the 60s and 70s, and the availability of cheap fuel to pump up water from the wells allowed farmers to use groundwater as if it were a renewable resource. It is said (MOA, 2014) that the water level has been sinking steadily ever since the 80s, and that it's been aggravated during the last 10 years by the noticeable change in rainfall patterns (NCSI, 2015).

Currently, there are strict regulations regarding the conservation of the wadis (natural valleys that carry temporary flows of water) as well as the recharge areas (MECA, 2014). These regulations in the environmental law are an urgent response to the ongoing water scarcity problem;

settlements are not allowed within large distances of these watercourses, and the extraction of water via wells is stricter every year. However, it is very hard for the authorities to control illegal wells on farms (MOA, 2014).

Regarding the treatment and reuse of wastewater, the general environmental law specifies things in a different manner. Here, a lot of specifications exist regarding how to discharge wastewater at a household and neighbourhood level as well as regarding the permitted wastewater chemical composition of the sludge and treated water used for further purposes (i.e., irrigation of crops): permits are issued for every single step of the wastewater discharging process, whether through a septic tank or into the network connected to the wastewater treatment plant (MECA, 2014). Likewise, permits are issued for the reuse of sludge and treated water for all purposes related to cattle and agriculture activities. For instance: sludge may be used on crops destined for grazing, but it cannot be applied within three weeks of the grazing period. Sludge is likewise prohibited on fruits and crops that grow on the ground, but it is allowed to be used on trees under specific chemical conditions.

The regulations related to the reuse are very adequate; they allow for crops that will be cooked or processed, as well as fodder cereal and crops, or fruits that will not be harvested in the next two weeks, to be irrigated with treated wastewater. This opens up a lot of possibilities for the incremental use of treated wastewater, but the

reluctance of people to do so — as portrayed in the interviews performed with the Ministry of Agriculture and the Municipal Council — has prevented a larger percentage of treated wastewater to be actually reused. The empirical analysis and interviews show that the majority of the people are not willing to accept any type of activities related to treated water, be it the eating of meat from cattle fed from irrigated harvests or the sitting on a lawn irrigated by treated water.

Currently, the wastewater treatment plant handles all of the wastewater in the city. The end product is carried back into the city with the use of tankers, and sprayed onto greenery along the main avenues and highways. In Al Buraimi's main park, only trees are sprinkled with treated water, whereas the grass areas where people play and sit are sprinkled with desalinated water coming from the coast. The conclusion is that even though the regulations for wastewater reuse are adequate enough, and the technology available at the new Al Buraimi treatment plant is good enough, a lot still needs to be done regarding public awareness and the culture of water saving.

Land tenure in the central oasis

The final issue that this study looks at is the current land planning as governed by the land-use map, which designates the central oasis plots as agricultural use only. Due to the ongoing shifts of activities, water scarcity, and process of decay, many of them are no longer suitable for



Figure 3 Abandoned plots in the central oasis (Source: Author)

any kind of development. Additionally, landowners have a strong attachment to these unused plots due to historical context and the fact that the tenures of central oasis plots have remained in the hands of the oldest tribes of the city. This poses a last but interesting issue to tackle should agriculture ever be revived at the city centre: the promotion of the re-development of these plots towards agriculture despite the few water resources, the lack of incentives for this economic activity, and the reluctance of the owners to have their plots transformed into something else.

The last aspect analysed in this study is the feasibility of having an urban growth management instrument that can be used as an incentive measure to increase the willingness of the landowners in regard to the re-establishment of agriculture in the central oasis. An incentive allowing certain agriculture plots to have small-scale mixed-use commerce at its borders could provide a belt of new activities surrounding the pathways that link up the oasis' plots; this would in turn enhance economic activities. Finally, the organising of the oasis into an agriculture district — by creating a community scheme for the area with new better practices regarding water resources and crops — could also give advantages to plot owners who wish to re-establish agriculture.

Results

The article shows that resilience in the city of Al Buraimi is only getting harder to acquire as time passes. The city is becoming more reliant on external products and services, namely water and agricultural products. This is alarming, as there are no real incentives to start a process based on the recovery of agriculture through better water management or incentives for production and commercialisation.

The most important strategy is to promote the reuse of sludge and treated wastewater to enable the re-activation of agriculture activities in the central oasis and villages. Incentive measures could include the free provision of fertilizer (treated sludge) and/or treated water for agriculture activities. The Ministry of Agriculture is already modernising the few farms that exist in the area by instigating a programme for green houses so that water can be used in a more responsible way. However, this is still not enough to make agriculture a profitable activity. The MOA could focus on introducing capacity building in terms of knowledge regarding better practices in agriculture, the use of new technologies, and even the commercialisation of products.

Besides this, there is a potential in reviving local trade with the help of the Chamber of Commerce, which is willing to invest in new businesses at a local level. A platform, for example, could be provided for locally produced products to be sold in the main city, and/or a branding campaign begun that places cultural value on consuming locally, including the provision of physical space at the central market for local farmers registered within an agricultural district (i.e., the central oasis) to sell their products.

The Ministry of Municipalities and the Ministry of Housing can foster the responsible use of water via awareness campaigns and by giving incentives for people to have water-saving technology at a household level. A lot needs

to be done at an urban level to reduce the pressure on water resources, but a good start would be to at least start changing the water-use culture towards a more responsible and aware culture that includes the acceptance of treated wastewater. This would not only allow for people to use green areas that are sprinkled with treated water, but also to consume crops and livestock that grazed on crops that are irrigated with treated water (done, of course, in accordance to the strict rules already stated in the law). If less desalinated water were required for daily consumption, the city could start recuperating from this external resource and, eventually, the amount of treated wastewater used could increase to the point of it also influencing the re-injection of water into the aquifer.

At the Ministry of Environment and Climate Affairs, a lot needs to be done in terms of research regarding geology and the reasons why the aflaj water flow has disappeared. The information gap related to this matter is alarming. This study finds that the general environmental law regarding water resources is still very general, and a thorough review should be done in order to establish some points for reform and to prevent further water resources from being depleted. Nonetheless, the law regarding the reuse of treated wastewater is very reasonable; the problem here lies in changing the mindset of Omanis towards the reuse of wastewater.

The aforementioned actions could be realised in the short term through strong investment, but others have to be made gradually and over a long period of time.

Conclusions

The main challenge for Al Buraimi, in order to catalyse a return process to primary activities, is to reconnect the economy in the city oasis and neighbouring villages to local businesses and households by profiting from treated wastewater in the agriculture sector.

Furthermore, the primary sector would be fuelled at a local scale and in a healthy way, were the municipality to focus on improving the agriculture sector via capacity building, the improvement of current practices, the introduction of sustainable technologies for farming and cattle raising, the introduction of incentives for production to occur, and the commercialisation of the local-level produce. Moreover, were the municipality to improve the wastewater treatment sector and change the citizens' culture and reluctance to reuse treated water, many opportunities could arise in terms of groundwater recharge.

There has been a big leap in the way that the city has developed, and not only have its historical assets been forgotten, but its primary source of development, agriculture, has also changed drastically. People are better off than before in terms of housing and access to education, health, and employment, but this has been at the expense of losing invaluable social structures such as sense of belonging, patrimony, neighbourhood, etc. All these structures were present when the central oasis was thriving with agriculture and the city life happened around it. There are many urban and regional issues that Al Buraimi has to tackle, agriculture and water management are but the stepping-stone into a long process of a shift in the development paradigm.

Jesús Salcedo Villanueva

graduated in architecture at the National Autonomous University Mexico, at the Max Cetto School and has experience on social development projects in Mexico's rural areas. He is also a DAAD scholar who recently obtained a Master of Science degree in Urban Management at the Technische Universität Berlin with a thesis on Omani Regional Development. Further work includes an internship with the Institute for Transport Research at the German Air-Space Centre and consulting work for the Municipal Council of Al Buraimi, Oman. Contact: <jesus@js-arquitectos.com>

- Ein Journal für Architekten, Stadtplaner, Ökologen und Entwicklungsplaner.
- Ein Journal zum Austausch beruflicher Erfahrungen im Bereich städtischer und ländlicher Entwicklung der Dritten Welt.
- Ein Journal zur Aufarbeitung neuer Forschungsergebnisse und zur Diskussion entwicklungspolitischer Konzepte für die räumliche Planung.
- Ein Journal der freien Diskussion, der Arbeitsberichte und der Dokumentation richtungsweisender Ansätze.

Die thematische Bandbreite von TRIALOG umfasst u.a. Verstädterung / Wohnungspolitik / städtische Sozialbewegungen / Architektur und regionale Kulturen / Ökologie, angepasste Technologien / ländliche Entwicklungsstrategien.

Themen der letzten Jahrgänge:

112/113 (1-2/13)	Camp Cities
111 (4/11-12)	Private Urbanisation – Zoo Cities
110 (2/11-12)	Urban Public Transport
109 (2/11-12)	Urban Rural Linkages
108 (1/11-12)	Public Space
107 (4/10)	Urban development and Spirituality
106 (3/10)	Designing for People – Amos Rapoport
105 (2/10)	Stadt und Wasser
104 (1/10)	Perspectives on Urban South Africa
102/3 (3-4/09)	Redefining the Urban
101 (2/09)	Borders and Migration
100 (1/09)	Urban Visions
99 (4/08)	East Africa
98 (3/08)	Forced Evictions
97 (2/08)	Es wandelt sich!
95/96 (1/08)	<think future>
94 (3/07)	Housing Policies
93 (2/07)	Imposing European Urban Structures
92 (1/07)	Megacities
91 (4/06)	Building on Disasters
90 (3/06)	Urban Coalitions
89 (2/06)	Controlling Urban Space – Rise of New Actors
88 (1/06)	Afghanistan
87 (4/05)	Violence and Insecurity in Cities
86 (3/05)	Teaching & Research 2
85 (2/05)	Cultural Diversity
84 (1/05)	Orte Bauen
83 (4/04)	Entlang der Seidenstraße

Einzelheft ab Nr.100 € 10,- (zzgl. Versand)

Doppelheft € 18,- (zzgl. Versand)

Einzelheft bis Nr.99 € 6,- (zzgl. Versand)

Mitgliedschaft im Herausgeberverein: € 65,- im Jahr,

Studenten € 40,- (jeweils inkl. TRIALOG-Abo)

Antrag auf Mitgliedschaft:

TRIALOG - Gerhard Kienast, Leberstraße 13

D- 10829 Berlin, Email: <gpkienast@yahoo.de>

Abo-Preise: (1 Jahrgang, 4 Ausgaben, zzgl. Versand)

Standard-Abo: € 35,-

Institutionen-Abo: € 45,-

Studenten-Abo: € 20,-

Abo-Bestellung / Einzelheft:

Wolfgang Scholz, TU Dortmund

Fakultät Raumplanung, 44221 Dortmund

e-mail: <wolfgang.scholz@tu-dortmund.de>

TRIALOG Kto. No. 4835-605, BLZ 500 100 60

Postbank Frankfurt am Main

IBAN: DE23 5001 0060 0004 8356 05 | SWIFT: PBNKDEFF

Weitere Informationen: <www.trialog-journal.de>

Book Reviews / Neue Bücher

Architektur

Meinhard von Gerkan: Black Box BER. Vom Flughafen Berlin Brandenburg und anderen Großbaustellen. Wie Deutschland seine Zukunft verbaut. Quadriga Verlag, Berlin 2013, 160 Seiten, Hardcover, ISBN 978-3-86995-060-0, € 14,99

Manchmal hat eine Kündigung auch ihr Gutes. Aus einer ex-ante Betrachtung heraus ist es möglicherweise ein günstiger Umstand, dass am 23. Mai 2012, 10:00 Uhr, der Bauherr des Flughafens Berlin-Brandenburg „Willy Brandt“ (BER) dem gesamten Planungsteam kündigte. Es bestand aus der Arbeitsgemeinschaft (ARGE) der Architekturbüros JSK Architekten sowie dem Büro Gerkan, Marg und Partner. Die Kündigung kam per Fax an das Büro und gleichzeitig über die Nachrichtenagenturen, und das „nach 487 Änderungen und Anordnungen“.

Nach Auffassung des Autors dieses Büchleins, Meinhard von Gerkan, spiegelte die Entscheidung der Bauherren lediglich „unstillbares Verlangen“ wider, jedoch kein Konzept. Gerkan vermutet hinter der Kündigung Rachegefühle – Gefühle eines öffentlichen Bauherren, der viel gefordert und ebensoviel geändert habe (z.B. die Bruttogeschossfläche und die non-aviation Flächen noch nach dem Planfeststellungsbeschluss), der aber kaum ansprechbar gewesen sei und Verantwortung delegiert habe.

Die Publikation ist allerdings mehr als nur eine kündigungsbedingte Abrechnung mit der selbst gemachten Katastrophe um den Flughafen BER. Es handelt vielmehr von den Grundprinzipien des dialogischen Planens und Bauens, von der Agonie der Expertokratie, von dialogresistenten Bauherren, dem Stuttgarter Juchtenkäfer (Stuttgart 21), und dem Bauen in Autokratien wie Saudi-Arabien oder China.

Das Werk geht somit weit über (bloße) Flughafen- und Großprojektplanung hinaus. „Wie Deutschland seine Zukunft verbaut“, lautet der reißerische Untertitel. Gewiss sind 24.000 Vorschriften für den Bau eines Einfamilienhauses kritisch zu hinterfragen. Daraus indes eine Standort Deutschland-Debatte zu fabrizieren, ist überspitzt.

Nun könnte man als Leser denken, dass angesichts der Kapitelüberschriften wie „Dramaturgie einer selbst gemachten Katastrophe: BER“, „Überfallartige Änderungswünsche“ oder der „Willkür politisch verordneter Terminsetzungen mit schwerwiegenden Kostenkonsequenzen“ dieser Publikation vergleichbare Rachegefühle Gerkans zu Grunde liegen, die er just den Bauherren vorgeworfen hat.

Ich muss gestehen, dass ich ähnlich dachte, als ich das Buch auf meinen Schreibtisch bekam, habe indes bald registrieren müssen, dass das

Buch eine Fülle von Hintergrundinformationen für Architekten, Projektsteuerer und –Manager und natürlich Politiker bereit hält.

Ich werde das Opus in meine Vorlesung zur Fachplanung und Planfeststellung als (Pflicht-) Lektüre einbauen, bietet es doch eine Horizonterweiterung jenseits der üblicherweise beim Flughafenbau thematisierten Aspekte wie Flugrouten, (vermeintlich) fallender Verkehrswerte vom Fluglärm betroffener Immobilien oder – im Falle der Diskussion um das geplante Terminal 3 des Frankfurter Flughafens – um Bannwald- und Artenschutz. Warum verordnen Bauherren Anweisungen und Änderungsverfügungen, die sich kontraproduktiv auf den Baufortschritt und damit Bauzeit verlängernd auswirken? Der Text eröffnet sinnvolle und vielfältige Anregungen zum dialogischen Planen und Entwerfen, vor allem auch im interkulturellen Kontext, etwa zum Bauen und Verhandeln in China und Vietnam.

Architekten sind keine „titanischen Einzelkämpfer“ (S. 91). Black Box BER hat sich zu meiner Überraschung durch die aufgeführte Literatur als ein Werk für Fragen rund um das nationale und internationale private Baurecht entpuppt. Der eigentliche Erkenntnisgewinn besteht für mich darin, Informationen und Handlungsanleitungen zu erhalten, wie vor allem international Bauprojekte jedweder Kubatur und Zweckbestimmung interdisziplinär und möglichst erfolgreich bis zur Abnahme im Werkvertrag, auch als ARGE, geführt werden. Aus eigener Erfahrung in der Baubranche vermag ich Gerkan voll zuzustimmen: Ohne Rückkopplung der am Bau beteiligten Dialogpartner geht es nicht.

Sehr instruktiv sind zudem die Ausführungen zu Wettbewerbsverfahren, zum Dilemma der HOAI in Bezug auf Entwicklungs- und Planungskosten sowie zur Ineffizienz von PPP-Projekten als Instrument des Kleinrechnens von Baukosten. Dem Steuerzahler würde hier vorgegaukelt, als kostenen ihn diejenigen Bau- und Infrastrukturprojekte nichts, die privat finanziert und betrieben werden. Erstaunlicherweise ist diese Annahme nach wie vor verbreitet.

Der Leser erfährt zudem etwas zur Rolle des Architekten und des Staats im Bauprozess – Eigennutz versus Gemeinnutz – zur „Expertokratie“ und Spezialisierung und warum die Vergabe eines öffentlichen Bauauftrags an architektonische Nobodys fast ein Ding der Unmöglichkeit ist.

Fazit: Das Buch hat Risiken und Nebenwirkungen, ist aber vor allem wegen der Auflistung der größten Kunstfehler in Bauprojekten seine Anschaffung Wert. Leider kommt das Wort „Korruption“, soweit ersichtlich, an keiner einzigen Stelle vor. Müssen Architekten niemals Geld aufwenden, um (lukrative) Aufträge zu erhalten?

Fabian Thiel

Gertrud Tauber. Architects and Post-Disaster Housing. A Comparative Study in South India. 251 S. Transcript Verlag Bielefeld. 2014.

Extreme Ereignisse in der Natur werden als Katastrophen bezeichnet wenn eine große Anzahl von Menschenleben und/oder Häuser dabei zum Opfer fallen. Im zweiten Fall entsteht die Notwendigkeit, die Häuser wieder aufzubauen oder zu ersetzen – was in der Regel die organisatorischen und finanziellen Möglichkeiten der betroffenen Bevölkerung und der lokalen Institutionen sprengt. Internationale Hilfe wird teils durch staatliche Institutionen geleistet und umgesetzt, aber zunehmend auch durch Nichtregierungs-Organisationen (NROs), die häufig bereits einen Kontakt mit der betroffenen Bevölkerung aufgebaut haben, vor Ort tätig sind. Dieser Ansatz ist als ‚Donor Driven Approach‘ (DDA) bekannt im Gegensatz zu dem ‚Owner Driven Approach‘ (ODA), bei dem die Bewohner mit finanzieller Unterstützung selbst die notwendigen Arbeiten in Auftrag geben (oder selbst durchführen) – was eher bei Reparaturen und punktuellen Neubauten die bevorzugte Praxis ist.

Die erwähnten Nichtregierungs-Organisationen erfüllen in ihrer tagtäglichen Arbeit hauptsächlich soziale und bildungsorientierte Aufgaben und bringen in den seltensten Fällen Erfahrung im Wohnungs- oder gar Siedlungsbau mit. Um, wie zumindest in ländlichen Raum üblich, auf die Tradition der örtlichen Baumeister zurückgreifen zu können, sind die Aufbau-Projekte zu groß – zumal sie eine planerische Komponente einschließen, die über das einzelne Wohngebäude wesentlich hinausgehen und weitergehende fachliche Qualifikationen erfordern. Konsequenterweise wird mit der Planung und Projektbegleitung bei solchen Aufgaben ein Architekt oder eine Architektin beauftragt, deren Berufsbild den genannten Anforderungen am besten entsprechen. Sofern internationale Geber im Spiel sind, gilt die Präferenz häufig einem internationalen Experten, von dem eine bessere Ausbildung und natürlich auch eine unparteiliche Kontrolle der Finanzen und anderer Parameter erwartet werden.

Einschränkend muss aber auch hinzugefügt werden, dass weltweit die Architektenausbildung nicht auf die Bedürfnisse armer Bevölkerungsgruppen oder ländlicher Regionen ausgerichtet ist und bei der situationsbedingten Dringlichkeit von Wiederaufbau-Maßnahmen kurzfristig nur sehr wenige mit der Aufgabe erfahrene Architekten zu Verfügung stehen (und zudem mit dem typischerweise bescheidenem Budget einer NRO auch schwer zu finanzieren wären). In der Konsequenz werden in der Überzahl unerfahrene Berufsanfänger eingestellt, die der Markt gerade anbieten kann und die weder praktisch noch theoretisch auf die Aufgabe des Wiederaufbaus nach Naturkatastrophen vorbereitet sind. Aus der geschilderten Situation leitet sich das Themenfeld der vorliegenden Arbeit ab: die Identifikation der in der realen Praxis erforderlichen – und in der heutigen Ausbildungsangeboten kaum berücksichtigten – Qualifikationen für Spezialisten für die Planung und Baubegleitung bei Wiederaufbauvorhaben

nach Naturkatastrophen, speziell in ländlichen Regionen und einer strukturell armen Bevölkerung in den Ländern des globalen Südens. Als Rahmenbedingung wird in der Arbeit die heutzutage mehrheitlich verbreitete Einschaltung von Nicht-Regierungs-Organisationen einbezogen. Bestehende wissenschaftliche Untersuchungen zu dieser Problematik sind nicht bekannt. Die Autorin ist sich bewusst, dass – insbesondere auch aufgrund der ortsbezogenen immer ganz speziellen kulturellen und anderen lokalen Gegebenheiten – die Studie nur exemplarische Ergebnisse liefern kann, und eine Übertragung der Forschungsergebnisse nur beschränkt machbar ist. Von Fall zu Fall und von Ort zu Ort ist eine Überprüfung und ggf. Anpassung der prinzipiellen Lehren aus dieser Forschung notwendig. Der Kern der Forschung liegt also in der Definition der fachlichen Anforderungen an eine Berufsgruppe, die für die Planung und Steuerung von Wiederaufbauprojekten von Wohngebäuden wie auch ganzen Siedlungen (also typischerweise Architekten) im Idealfall zu stellen wären – soweit sie sich aus der konkreten Erfahrung von drei Wiederaufbauprojekten in Südindien ableiten lassen. Ergänzend zu den empirischen Untersuchungen wurden zahlreiche Experten der Entwicklungshilfe und NROs interviewt.

Ein wesentlicher Aspekt im ländlichen Bauen – insbesondere wenn externe Finanzierung und ‚Experten‘ im Spiel sind, ist die Kenntnis und Berücksichtigung der kulturellen Charakteristika. Stark vereinfacht lässt sich im Baugeschehen eine Trennlinie zwischen einem ‚modernen‘ und ‚traditionellen‘ Ansatz ziehen. Die moderne Baukultur wird (in Indien) vertreten durch staatliche Reglementierung und Wertsetzung durch professionelle Institutionen. Die Erwartungen der späteren Nutzer spielt dabei eine eher untergeordnete Rolle. Häufig manifestiert sich auf Projektebene ein Bruch zwischen den Wertesystemen der Nutzer und denen der Planer. In der Literatur taucht für den modernen Ansatz der Begriff ‚systems of ignorance‘ auf, die dafür verantwortlich gemacht werden, dass von Hilfsorganisationen oder der Regierung fertig gestellte Häuser später von der Bevölkerung nicht angenommen werden. In der indischen Dörfern traditionell verankerten Baukultur ist die soziale Bindung zwischen Baumeister und Nutzer die Vertrauensgrundlage, sofern die Bewohner nicht von vorneherein allein oder gemeinschaftlich bauen. Die Bauprozess ist besetzt mit rituellen Konnotationen und stellt ein wichtiges Ereignis im Dorfleben statt. Eine bestimmte Abfolge von religiösen Zeremonien schützen das künftige Heim und die Familie; Lage und Orientierung der Wohnung folgen unter anderem spirituellen Bedürfnissen und werden im Regelfall im Planungs- und Bauprozess integriert. Baumeister und Nutzer teilen das gleiche Wertesystem. Alle drei Fallstudien belegen die Schlüsselrolle ritueller und religiöser Bräuche, die sich u. a. in bestimmten Zeremonien und Weihungen ausdrücken oder in der Einplanung von Andachtsnischen und Tempeln. Kulturelle Bedürfnisse manifestieren sich auch in Hinblick auf

TRIALOG

A Journal for Planning and Building in a Global Context

- A journal for architects, planners, sociologists, geographers, economists and development planners
- A journal for the exchange of professional experience in the field of urban development in the Third World
- A journal for the presentation and discussion of new research results and for the discussion of recent concepts of development policies for urban change
- A journal of free discussions, of work reports and of documentation of alternative approaches

The thematic range of TRIALOG includes among other related topics: urbanisation / housing policy / urban social movements / architecture and regional cultures / ecology and appropriate technologies / rural development strategies.

Contributions in TRIALOG are written in German or English, with a summary in the respective other language.

Available TRIALOG-numbers in English:

112/113 (1-2/13)	Camp Cities
111 (4/11-12)	Private Urbanisation – Zoo Cities
110 (2/11-12)	Urban Public Transport
109 (2/11-12)	Urban Rural Linkages
108 (1/11-12)	Public Space
107 (4/10)	Urban development and Spirituality
106 (3/10)	Designing for People – Amos Rapoport
104 (1/10)	Perspectives on Urban South Africa
102/3 (3-4/09)	Redefining the Urban
101 (2/09)	Borders and Migration
100 (1/09)	Urban Visions
99 (4/08)	East Africa
98 (3/08)	Forced Evictions
95/96 (1/08)	<think future>
94 (3/07)	Housing Policies
93 (2/07)	Imposing European Urban Structures
92 (1/07)	Megacities
91 (4/06)	Building on Disasters
90 (3/06)	Urban Coalitions
89 (2/06)	Controlling Urban Space – Rise of New Actors
88 (1/06)	Afghanistan
87 (4/05)	Violence and Insecurity in Cities
86 (3/05)	Teaching & Research 2
85 (2/05)	Cultural Diversity
82 (3/04)	Urban Mobility
81 (2/04)	Micro Governance
80 (1/04)	Neo-liberal Urbanity

(previous issues on request)

Single issue € 10 (plus postage)

Double issue € 18 (plus postage)

Previous issues (till No.87) € 6 (plus postage)

Membership in the association: € 65,-

(Annual fee, incl. the subscription of TRIALOG)

Request for membership:

TRIALOG – Gerhard Kienast, Leberstr. 13

D-10829 Berlin, E-mail: <gpkienast@yahoo.de>

Subscription of TRIALOG (4 issues/year):

€ 35 for personal orders (plus postage)

€ 45 for institutions (plus postage)

€ 20 for students (plus postage)

Orders for subscription / single issues:

Wolfgang Scholz, TU Dortmund

Fakultät Raumplanung, D-44221 Dortmund

e-mail: <wolfgang.scholz@tu-dortmund.de>

TRIALOG Account No. 4835 605

Postbank Frankfurt am Main

IBAN: DE23 5001 0060 0004 8356 05 | SWIFT: PBNKDEFF

Website: <www.trialog-journal.de>

die Positionierung der Küche oder des Eingangs zum Badezimmer, wie auch dem Wunsch nach Andersartigkeit im Aussehen des eigenen Hauses im Vergleich zu allen anderen. Technologisch erfahren traditionelle Baumethoden, zumindest im ländlichen Raum, eine deutliche Präferenz gegenüber modernen wie auch alternativen Methoden („Was der Bauer nicht kennt...“). Zumindest was die klimatischen Qualitäten angeht, hat sich dieses Vorurteil in den untersuchten Projekten als berechtigt herausgestellt. Auch wenn bestimmte Zweifel an der Rolle von Architekten in Wiederaufbauprojekten zum Ausdruck kommen, bleiben auch gute Argumente für die bewusste Einbindung von Architekten bestehen: Bei großen Siedlungsprojekten, die auch die Planung von Infrastruktur und Gemeinschaftseinrichtungen erfordern, sowie Verhandlungen mit Behörden und Gebern, eine wissenschaftlich begründete Argumentation etc., sind Architekten unverzichtbar. Das ist in diesem Fall anders als bei der Reparatur eines beispielsweise durch Erdbeben zerstörten Hauses, wo je nach Schaden ein Ingenieur oder ein lokaler Handwerksmeister nützlicher sein können.

Wenn wir uns in einem städtischen Kontext bewegen, ist der oder die Architekt/in auch für die Beantwortung weiterer Fragen notwendig: welche Bauvorschriften und Normen sind wichtig, welche Modalität der Grundstückvergabe, welche Finanzierungsvarianten können angeraten oder entwickelt werden, wie viel Freiräume sind notwendig für Erholung und Kleinklima (und viele mehr)? Nicht vergessen werden darf, wie auch diese Studie belegt, die Funktion von Architekt/inn/en als Beratende von Nichtregierungs-Organisationen (NROs).

NROs fehlt oft das planerische Fachwissen, sie waren vielleicht in der Vergangenheit mehr in Sozial- oder Bildungsprojekten aktiv und benötigen Unterstützung im Projektmanagement. Ein chronisches Problem bei Wiederaufbauprojekten ist die Einbindung von jungen Architekten ohne ausreichende Praxiserfahrung. Sicherlich werden sie gebraucht, denn zum Einen kann der Bedarf an erfahrenen Fachleuten kurzfristig nicht gedeckt werden, und zum Anderen müssen die Nachwuchsarchitekten schließlich irgendwo ihre Erfahrungen sammeln können. Hier zeigt sich die Notwendigkeit guter Schulung, Vorbereitung und Anleitung im Projektverlauf. Systematische Programme hierfür gibt es so gut wie gar nicht. Eine zusätzliche Schwierigkeit liegt in der kulturellen Kluft, der sich internationale Architekten vor Ort ausgesetzt sehen, oder auch der internationale Experten-Ghettos, in denen manche Expatriates leben und wo Neuankömmlinge oft ihre ersten Kontakte vor Ort knüpfen.

Aus den verschiedenen Kommentaren leitet sich zwangsläufig die Frage ab, was eine adäquate Ausbildung in Vorbereitung auf Wiederaufbauaufgaben nach Naturkatastrophen leisten sollte. Da dies notwendigerweise nur spekulativ formulierte Empfehlungen sein können und es daher nicht möglich ist, sie wissenschaftlich zu belegen, hütet sich die Autorin intelligenter Weise davor,

im Rahmen ihrer Dissertation ins Detail zu gehen. Ihre Forschung belegt lediglich, dass eine konventionelle Architekturausbildung zur Meisterung der anfallenden Aufgaben nicht ausreicht, und zählt ein Minimum von fünf Gründen auf, warum. Wissend um die bereits randvoll gestopften Curricula etablierter Architekturausbildung erkennt sie, dass die Hinzufügung weiterer ggf. notwendiger Lerninhalte kein gangbarer Weg sein kann, sondern fordert für die spezielle Aufgabe des Katastrophen-Wiederaufbaus einen Paradigmenwechsel, der den Experten nicht als erfinderischen Kopf einer hierarchischen Organisationsstruktur versteht, sondern als Mediator und Koordinator der unterschiedlichen Projektbeteiligten. Als grundsätzlich notwendig wird das parallele Angebot theoretischer Grundlagen und praktischer Fähigkeiten vorgeschlagen, wobei beide Bereiche mit exemplarischen Beispielen illustriert sind. Obwohl es weltweit zahlreiche Studienangebote zu Entwicklungszusammenarbeit und Katastrophenhilfe gibt, sind davon nur zwei auf die baulichen Notwendigkeiten ausgerichtet: das an der Oxford Brookes University beheimatete Programm Shelter after Disaster, und der an der UIC in Barcelona angebotene Masterkurs als Vertiefungsoption des internationalen Mundus Urbano Programms. Diese beiden Studienangebote können den Ausbildungsbedarf, der von allen Interviewten bekräftigt wird, allein schon aus Kapazitätsgründen nicht abdecken.

Kosta Mathéy

Stadtentwicklung



Peter Herrle, Josefine Fokdal, Detlef Ipsen (†) : Beyond Urbanism. Urban(izing) Villages and the Mega-urban Landscape in the Pearl River Delta. Lit-Verlag Münster 2014. 184 Seiten. ISBN 978-3-643-90552-9.

Mit „Beyond Urbanism“ legen Peter Herrle und Josefine Fokdal von der TU Berlin eine Art Abschlussbericht des gemeinsam mit Detlef Ipsen von der Universität Kassel durchgeführten Forschungsprojekts zur Verstädterungsdynamik im Perflussdelta vor. Das Projekt war eines von elf dfg-geförderten Forschungsvorhaben zu Megastädten, die sich ab 2005 mit den beiden am

schnellsten verstärkenden Regionen der Erde, dem Perflussdelta zwischen Guangzhou und Shenzhen sowie der bengalischen Hauptstadt Dhaka beschäftigt haben.

In diesem Fall konzentrierte sich das Erkenntnisinteresse auf sich verändernde Landnutzungsmuster, urban villages und deren globale Einflüsse. Zwar sind wichtige Ergebnisse des Projekts bereits vor Jahren in Fachzeitschriften veröffentlicht worden (z.B. in einem Artikel in *Trialog* Nr. 102-103).

Der Schlussstein konnte aber erst kürzlich gesetzt werden, da bei Detlef Ipsens überraschendem Tod im Jahr 2011 erst die Hälfte des Textmaterials vorlag.

Das nun vorgelegte Buch erzählt erneut die Geschichte der Konversion des bis in die 1980er Jahre landwirtschaftlich geprägten Deltas durch Fabriken und Mietskasernen, die auf dem Grundriss früherer Anbauflächen entstanden, und erklärt den Prozess im Wesentlichen als Zusammenspiel der klassischen Faktoren Land (in den Händen der Dorfkomitees), Kapital (erst eingeführt durch Investoren aus Hong Kong, dann auch aus anderen nationalen und globalen Quellen) und Arbeit (in der Gestalt von Millionen Zuwanderern aus den umliegenden Provinzen).

Dazu bezieht sich das Buch, zumindest eingangs, auf zahlreiche weitere theoretische Konzepte (von Giddens' „embeddedness“ über Castells' „space of flows“ bis zu Augés „non-places“), um die „informellen Dynamiken der mega-urbanen Landschaft“ besser verständlich zu machen. Auf dieses Fundament folgen zwei Kapitel die bereits andernorts gewonnenes Wissen mit eigenen Forschungsergebnissen verbinden.

Dabei werden Akteure und Rollen, welche die Landschaft geformt haben, Bodenmärkte, staatliche Regulierungen und der Wandel der administrativen Strukturen in den sich verstärkenden Dörfern Südchinas vorgestellt.

Sechs, mit Fotos reich illustrierte Fallstudien zeigen die enorme Bandbreite der Veränderungen der (früheren) Dörfer, darunter Orte, die sich trotz enormer Verdichtung und der Überführung von Dorfgemeinschaften in Aktiengesellschaften ein hohes Maß an Identität bewahrt haben, und andere, wo die ursprünglichen Bewohner zwar zu Millionenbauern geworden sind, das Dorf aber inzwischen so durch Infrastrukturen durchschnitten wurde, dass seine Auflösung in der Stadtlandschaft unaufhaltsam scheint.

In den beiden abschließenden Kapiteln, die mit „Winners and Losers“ und „From Rural to ‘Mega-urban‘“ überschrieben sind, fassen die Autoren ihre Ergebnisse zusammen. Demnach befinden sich die Dörfer und die umgebende Landschaft in einem unabgeschlossenen Veränderungsprozess, der von harten Verhandlungen zwischen den ursprünglichen Dorfbewohnern, staatlichen Autoritäten und externen Investoren geprägt wird, die dabei verschiedene Formen von Macht, Ressourcen und Legitimität einsetzen. Dabei wird deutlich wie viel Informalität der chinesische Staat bei der Verstärkung des Perflussdeltas jahrzehntelang zugelassen hat und wie groß die

Verhandlungsspielräume der zu Aktionären gewordenen Dörfler noch heute sein können.

Zwar konstatieren die Autoren einen hohen Anpassungsdruck im Zuge der Umstellung von ländlichen auf städtische Verwaltungsformen. Dennoch sind sie vorsichtig optimistisch, dass China den lokalen Gemeinschaften allmählich eine aktivere Rolle bei der Gestaltung ihrer Zukunft zugesteht.

All das sind für noch nicht mit der Materie befasste Leser spannende Erkenntnisse.


Wer die Forschung zu den chinesischen Megastädten schon länger verfolgt, wird aus dem

Buch dagegen nicht viel Neues erfahren, zumal es auf Erhebungen beruht, die im Wesentlichen bereits 2010 abgeschlossen waren. Bedauerlich ist dabei, dass die Autoren bei der Auswertung ihres empirischen Materials viele der eingangs zitierten Theorien nicht mehr aufgegriffen haben. Dabei hätten Castells' „space of flows“ die globalen Zusammenhänge verdeutlichen können. Auch über die subjektiven Perspektiven der Akteure, ihre ‚Herauslösung‘ oder ‚Einbettung‘ in die mega-urbane Landschaft hätte man nach dem Verweis auf Giddens gerne mehr erfahren.

Gerhard Kienast

Dr. Bernd Ciecior (Bo Ciceron)

19.02.1945 - 30.04.2015

NAME	ADRESSE	UNTERSCHRIFT
GLÖBUS-C Bernardo	HERBOSCH, 72- 528-75, Avenida 14. Abril, Vila Verde, 15. Novembro, Samaralena	

Unser Freund Bernd Ciecior, alias Bernardo (Bo) Ciceron, längstes Ehrenmitglied von TRIALOG, ist im April 2015 aus dem Leben geschieden. Bernd war ein besonderer Mensch, wie jeder sofort merkte, der ihm begegnete. Seine Talente kannten fast keine Grenzen: er sang in mehreren Chören, er spielte Klarinette und verschiedene andere Instrumente, er schrieb Theaterstücke und Sketche und war begeisterter Schauspieler auf verschiedenen kleinen Bühnen. Zuweilen bekamen wir – ob wir wollten oder nicht – kleinere Einlagen auf unseren Mitgliederversammlungen geboten. Er skizzierte und zeichnete unentwegt, mit sicherem Strich, starkem Ausdruck und unglaublicher Schnelligkeit, und er beschriftete seine Zeichnungen in kalligraphischer Qualität – zwei Titelbilder von TRIALOG aus den letzten Jahren (das Jubiläumsheft 100 und das Doppelheft 102/103) zeugen davon. Seit langem schon fotografierte er sich selbst und andere – teils schnell überrumpelte Freunde und Prominente – mit ausgestreckter Hand und baute diese Schnappschüsse in Bilder und Collagen ein, in von farbenfroher Ästhetik und Fröhlichkeit sprühende Briefe, Notizzettel, Karikaturen oder Nachrichten, die stets mit der gleichen kalligraphischen Sorgfalt gestaltet waren. Zeitgenossen bemerkten dazu, eigentlich müsse er doch als wahrer Erfinder des Selfie gelten, das ja erst viele Jahre später in Mode kam. In Aachen, dem Mittelpunkt seiner letzten Lebensjahrzehnte, sind Postkarten von Bernd im Umlauf, mit souverän zusammenskizzierten Sehenswürdigkeiten der alten Kaiserstadt. Er schrieb auch Kurzgeschichten und arbeitete zuletzt an einer – leider nun Fragment gebliebenen – Kriminalgeschichte mit seinem Alter Ego Capitán Cicerón, inspiriert von der gleichnamigen Figur im Roman Handel der Gefühle von Leonardo Padura. Er malte großflächige Tafelbilder mit psychologischer Tiefe und stets feinsinnigem Humor. Dies half ihm in schwierigen Lebenslagen, die sich am Ende



häuften, einige seiner größeren Ausgaben mit Bildern zu bezahlen. Und was wir nicht vergessen wollen, Bernd war Architekt, war über verschiedene Zeiträume anerkannter Forscher und Dozent an mehreren Hochschulen und engagierte sich bis zuletzt für nachhaltige und menschengerechte Ansätze in Wohn- und Städtebau – sei es in Deutschland, in Venezuela, in Kuba und all den anderen Ländern, die er schätzte und kannte. Dies war es auch, was ihn schon in den ersten Jahren nach der Gründung von TRIALOG zur Zeitung und zum Verein brachte, für den er sich immer mit viel Engagement und Nutzung aller seiner Talente einsetzte. Die ihm 2005 als erstem Mitglied von TRIALOG verliehene Ehrenmitgliedschaft ist Ausdruck davon. Da sein Geist immer schnell nach vorne dachte und mit großer Geschwindigkeit Zeiträume und Erinnerungen durchmaß – mit einem hervorragenden Gedächtnis für Personen und Einzelheiten – wollte auch sein Redefluss oft dieser Geschwindigkeit folgen, was Freunde und Mitmenschen dann auf harte Proben stellte und nicht selten überforderte. Wir werden seine Unruhe, seine teils verstörende und stets anregende Präsenz sehr vermissen. Seinem Wunsch folgend fanden auch seine sterblichen Überreste am 26. Juni 2015 im Meer bei Scheveningen, NL, ihre letzte Ruhe.

Klaus Teschner

Impressum

Herausgeber von TRIALOG / editor: TRIALOG e.V.,
Verein zur Erforschung des Planens und Bauens in
Entwicklungsländern www.trialog-journal.de

Postadresse für Redaktion und Verein / address:
TRIALOG e.V. c/o A 53 Habitat Unit,
Straße des 17. Juni 152, 10623 Berlin
Vertrieb / distributor: Südost Service (SVS) GmbH, Waldkirchen
ISSN Nr.: 0724-6234; V.i.S.d.P.: Klaus Teschner

Redaktion / volume editors: Sonja Nebel, Wolfgang Scholz
Satz / layout: Melanie Halfter
Lektorat / final editing: Klaus Teschner
Druck / print: Kraft Druck GmbH, Ettlingen
Proofreading: Bryin Abraham
Rezensionen / book reviews: Kosta Mathéy, Gerhard Kienast,
Fabian Thiel
Veranstaltungen / events: Gerhard Kienast, Wolfgang Scholz
Titelbild / title: Muscat, Oman; Photo: Aurel von Richthofen

Die in TRIALOG veröffentlichten Artikel repräsentieren nicht zwingend die Meinung der HerausgeberInnen und der Redaktion. Nachdruck ist mit Angabe der Quelle und Zusendung eines Belegexemplars gestattet. Artikel, Ankündigungen und Informationen bitten wir an die Adresse des Vereins oder an folgende Kontaktpersonen zu richten:

Vorstand / Board:

Gerhard Kienast (Mitglieder / membership)
Leberstr. 13, 10829 Berlin, Tel. 01577 – 6040320
E-mail: <gpkienast@yahoo.de>

Klaus Teschner (Finanzen / treasurer)
Schleiermacherstr. 10, 10961 Berlin, Tel. 0179 – 2395619
E-mail: <teschner@habitants.de>

Kosta Mathéy (Buchrezensionen / book reviews)
c/o GLOBUS, Internationale Akademie an der FU
Grimmstraße 12, 10967 Berlin, Tel. 0170 – 7113337
E-mail: <kosta.mathey@gmail.com>

Wolfgang Scholz (Abonnements / subscriptions)
TU Dortmund, Fak. Raumplanung, August-Schmidt-Str. 6,
44225 Dortmund, Tel. 0231 – 7553267
E-mail: <wolfgang.scholz@tu-dortmund.de>

Renate Bornberg (Artikeleingang / contact for authors)
c/o IVA – Institut für vergleichende Architekturforschung TU
Wien, Auhofstraße 51/2/14, 1130 Wien
E-mail: <rbornberg@googlemail.com>

Beirat / Local correspondents:

Antje Wemhöner, Zwinglstr. 4, 10555 Berlin,
Tel. 030 – 39101525, E-mail: <A.Wemhoener@gmx.de>

Paola Alfaro d'Alençon / Philipp Misselwitz
Habitat Unit, Straße des 17. Juni 135, 10623 Berlin
Tel. 030 – 31421908, Fax: 030 – 31421907
E-mails: <paola.alfarodalencon@tu-berlin.de> /
<misselwitz@tu-berlin.de>

Jürgen Oestereich, Am Dickelsbach 10, 40883 Ratingen
Tel/Fax: 02102 – 60740, E-mail: <J_Oestereich@gmx.de>

Hassan Ghaemi, Löwengasse 27 E, 60385 Frankfurt/Main
Tel. 069 – 560464-0, Fax: 069 – 560464-79
E-mail: <hassan.ghaemi@ghaemi-architekten.de>

Michael Peterek, Eleonore-Sterling-Str. 8, 60433 Frankfurt a. M.
Tel. 069 – 53098328, E-mail: <MPPeterek@aol.com>

Astrid Ley, Städtebau-Institut (SI), Univ. Stuttgart,
Keplerstr. 11, 70174 Stuttgart
E-mail: <astrid.ley@si.uni-stuttgart.de>

Peter Gotsch, Gluckstr. 5, 76185 Karlsruhe
Tel. 0721 – 608 7154, E-mail: <peter.gotsch@googlemail.com>

Kathrin Golda-Pongratz
Plaça Sant Pere, 4 Bis 3-1, E-08003 Barcelona
Tel. +34 – 93 2691226, E-mail: <kathrin@pongratz.org>

Hans Harms, 29 South Hill Park, London NW3 2ST, UK
Tel. +44 – 207 4353953, E-mail: <hans@hans-harms.com>

Florian Steinberg, Edificio Perla del Otún, Apto. 1301
Cra. 10 # 20-11. Pereira, Risaralda, Colombia
Tel. +57 – 63351307, E-mail: <floriansteinberg@gmail.com>

TRIALOG Kto. No. 4835-605, BLZ 500 100 60
Postbank Frankfurt am Main, SWIFT: PBNKDEFF
IBAN: DE23 5001 0060 0004 8356 05

TRIALOG 114 kostet / costs 10,- € + Vers. / postage
Stand / up-dated: 06/2015

Forthcoming Events / Veranstaltungen

July 20–21, 2015 in London, UK

8th Global Studies Conference: Power and Participation in the Age of Big Data – A Common Ground Conference.

<<http://onglobalization.com/the-conference-2015>>

August 7–11, 2015 in Livingstone, Zambia

Journal of Southern African Studies 1st Biennial Conference: "Southern Africa beyond the West: Political, Economic & Cultural Relationships with the BRICS & the Global South"

<<http://saipar.org/southern-africa-beyond-west/>>

August 20, 2015 in Washington DC, USA

Real Estate, Construction, and Urban Development 2015 Conference

<<http://www.advenaworld.com/real-estate-construction.html>>

September 1, 2015 in Medellin, Colombia

Sustainable City 2015 - 10th International Conference on Urban Regeneration and Sustainability, <<http://www.wessex.ac.uk/city2015>>

September 7–8, 2015 in Antalya, Turkey

International Conference on Architecture, Structure and Civil Engineering (ICASCE'15) Sept. 7-8, 2015 Antalya (Turkey)

<<http://icasce.urcae.org/index.php>>

October 5–6, 2015 in Singapore

Annual International Conference on Urban Planning and Property Development (UPPD)

<http://www.urban-ppd.org>

October 23, 2015 – December 14, 2015 in Berlin, Germany

Wohnungsfrage, Architekturausstellung und Publikationsreihe, Haus der Kulturen der Welt <info@hkw.de>, <www.hkw.de>

November 13, 2015 in Hamburg, Germany

TRIALOG Annual Conference 2015: 'Resource Efficiency in Planning and Architecture'. Organised by TRIALOG and Hafen City University (HCU). Contact: Prof. Wolfgang Dickhaut, Überseeallee 16, D-20457 Hamburg, Germany. Tel.: +49 40 42827 5095, E-Mail: <wolfgang.dickhaut@hcu-hamburg.de>

November 14, 2015 in Hamburg, Germany

TRIALOG Mitgliederversammlung 2015, Ort: Hafen City University, Überseeallee 16, 20457 Hamburg, FG Umweltgerechte Stadt- u. Infrastrukturplanung, Raum 5033. Zeit: 10.00 Uhr - 14.00 Uhr. Nicht nur Mitglieder, alle mit Interesse am TRIALOG-Journal / am Verein TRIALOG e.V. sind willkommen. Kontakt: Prof. Wolfgang Dickhaut, Tel. +49 40 42827 5095. E-mail: <wolfgang.dickhaut@hcu-hamburg.de> oder Gerhard Kienast, Tel. +49 1577 6040320, E-mail: <gpkienast@yahoo.de>

Nov. 19–21, 2015 in Dortmund, Germany

XVI N-AERUS Conference "Who wins and who loses? – exploring and learning from transformations and actors in the cities of the South". N-AERUS is the Network-Association of European Researchers on Urbanisation in the South. Roundtables: 1- Urbanisation beyond megacities. 2- Learning beyond 'best-practice'. 3- Politics of knowledge in research and education. Hosted & organised by TU Dortmund University. Contact/ information: <www.n-aerus.net>; Wolfgang Scholz, <naerus2015.rp@tu-dortmund.de>

TRIALOG Annual Conference 2015 in Hamburg:

Resource Efficiency in Architecture and Planning

in cooperation with Hamburg HafenCity University

Friday, Nov. 13, 2015, 09:30–18:00, at HafenCity University, Überseeallee 16, 20457 Hamburg. Hosted by Prof. Wolfgang Dickhaut, HCU, FG Umweltgerechte Stadt- und Infrastrukturplanung.

Call for Papers

We are asking for presentations and documentations with a focus on:

- Water resource management, energy-saving or climate adaption
- Related applied technologies - low or high tech – in urban settlements
- Consideration of social and economic good practice
- Evaluation of field experience in countries of the Global South

Please submit a (max.) two page abstract of your proposed presentation to Prof. Wolfgang Dickhaut wolfgang.dickhaut@hcu-hamburg.de | 0049-40-428275095 at HCU-Hamburg by Sept. 1st, 2015.

Please do not forget to include the following information:

- title of presentation/documentation
- short description of the content (e.g. which issues, which solutions/technologies, involved stakeholders and planning process, results/evaluation, open questions, source of information or data)
- country and year of empirical work or study
- name of institution and author, contactdata

TRIALOG and HCU will assess these papers till mid of September and choose six and eight authors to present in November in Hamburg. TRIALOG plans to publish a thematic volume on the conference topic and will consider including the papers presented in the event

Wolfgang Dickhaut and Kosta Mathéy