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AL-DIRA' TRADITIONAL QUARTER AS A GUIDE TO RESPONSIVE DEVELOPMENT

Maged Attia
Assistant Professor, Department of Architecture, Faculty of Engineering, Helwan University, Egypt, mattia@kau.edu.sa

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Abstract

Between traditional and contemporary there are two contradictory visions. The first adopts originality and returning to the traditional, while the second advocates modernity and liberation from the old. The present paper discusses how to benefit from the present facilities without losing features of the past when developing new neighbourhoods. Al-Dira', a traditional quarter in Al-Jouf, Saudi Arabia, is elected as a case study within which the housing unit and the urban pattern are analysed. Visual documentation, surveying, mapping, and interviews constitute essential tools to get an insight on the traditional planning and design process. On the other side, Al-Rabwa, a typical contemporary officially planned district, is investigated. It is concluded that the need for modernization should be balanced with originality. Understanding forces that shaped traditional quarters and are still embedded in the community offers a stream of information that can be utilized in contemporary development. A responsive development needs to consider local identity while formulating compact low rise buildings with courtyards and carefully positioned openings, small scale open space system, straight roads for cars and protected walkways for pedestrians, well distributed parking lots, and integrated relationship between housing, mosque and market.

Keywords

Traditional districts, Traditional architecture, Saudi Arabia, Al-Jouf, Al-Dira' Quarter, Responsive development, Local identity

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Abstract

Between traditional and contemporary there are two contradictory visions. The first adopts originality and returning to the traditional, while the second advocates modernity and liberation from the old. The present paper discusses how to benefit from the present facilities without losing features of the past when developing new neighbourhoods. Al-Dira', a traditional quarter in Al-Jouf, Saudi Arabia, is elected as a case study within which the housing unit and the urban pattern are analysed. Visual documentation, surveying, mapping, and interviews constitute essential tools to get an insight on the traditional planning and design process. On the other side, Al-Rabwa, a typical contemporary officially planned district, is investigated. It is concluded that the need for modernization should be balanced with originality. Understanding forces that shaped traditional quarters and are still embedded in the community offers a stream of information that can be utilized in contemporary development. A responsive development needs to consider local identity while formulating compact low rise buildings with courtyards and carefully positioned openings, small scale open space system, straight roads for cars and protected walkways for pedestrians, well distributed parking lots, and integrated relationship between housing, mosque and market.

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INTRODUCTION

During a visit to Al-Jouf region, the unique urban and architectural character of Al-Dira', a traditional residential quarter, re-inspired the debate about traditional and modern. The debate was initiated in the early nineties when the world cities began to experience a new trend in architectural and urban design (Al Sayyed, 2011). Such trend, known as modernism, introduced international architectural style and gridiron pattern of land subdivision to replace traditionalism (Abu-Dayyeh, 2006). Modernism produced buildings and spaces with similar design features and configurations which made it difficult to distinguish between them (Bianca, 2000). By 1950s, modernism was adopted in Saudi Arabia introducing new typologies of architectural and urban works resulting in unidentifiable environments (Al-Ibrabim, 1990). On the contrast, traditionalism used to express local identity by providing pertinent architectural and urban products and reflecting deep human experiences (Al-Naim & Mahmud, 2007). Such architectural and urban products are the physical features of civilizations with their historical, cultural, aesthetic and artistic dimensions (Mahgoub, 2004). Architectural and urban design of traditional districts represents a living witness of the authenticity and the association with the environment and local customs and traditions (Eben Saleh, 1999). However, one can argue that both traditionalism and modernism include many lessons that need to be carefully read.

The transformation from traditional to modern in the Saudi built environment has experienced many paradigms including the cultural shock, identity versus modernity, from modernism to neo-traditionalism and finally globalization and the rise of consumer identity (Al-Naim, 2005). With regard to housing, three stages can be monitored including hybridizing, transition and contemporary (Al-Hathloul & Mughal, 1999). In the hybridizing stage (1940-1950), reinforced concrete was utilized on a limited scale (El-Shorbagy, 2010). In the second stage (1960- 1980), the government began to increase its involvement in the physical environment by building regulations. Setbacks and segregation of dwellings and grid land subdivision were then introduced (Al-Said, 2003). In the third stage, the gridiron land subdivision and setback plans were adapted as the only way to deal with the home environment. Decisions about the process of producing the housing environment had completely shifted from the people to the government (Eben Saleh, 2004).

[1]Assistant Professor, Department of Architecture, Faculty of Engineering, Helwan University, Egypt

mattia@kau.edu.sa

The present paper argues that Saudi housing environment needs to be readdressed with a response to the debate of tradition and modernity. Contemporary housing development needs to consider the sensitivity of locality and arrive at a compromise between the need for modern technology and the preservation of traditions. Understanding values behind traditional quarters is believed to assist forming the present without losing features of the past which carry roots of civilization and tie man with his society. With the help of these features, professionals can develop new residential areas that are responsive to the actual needs of the people. So, Al-Dira', which proved to be a responsive residential environment, was elected for analysis. Al-Dira' quarter composes an integrated human settlement including a mosque for religious rituals, a market for economic activities, agricultural land for producing food.

DATA AND METHODS

As indicated in Figure (1), the research was initiated by a review for Al-Dira' quarter and its context. Then, issues in relation were covered including values inherited in traditional districts, culture and identity and conserving traditional quarters. Maps and aerial views of the study area were prepared and a site visit took place. During the visit, urban and architectural features were photographed and documented. Photographic survey, as part of the historical documentation and analysis, aims at identifying patterns and evaluating significant features of the built environment. The process of visual documentation was essential to understand collective physical expressions of social, economic and technical values. Buildings of potential significance and those which require explanation could then be identified. A detailed survey and mapping for selected houses and open spaces came about and were illustrated. Structured interviews of open ended questions were performed with residents of the quarter. These interviews constitute an important spine of the study. Combining aerial views and field survey can explain how people interact with the surrounding circumstances. The respondents supplemented the research with a wide scope of information regarding local architecture, urban pattern, the function of different components of the quarter, the spontaneous planning and design process, and the changes that happened during the recent period. The questions begin with straightforward ones that relate to the use of indoor and outdoor spaces, the daily life interaction and the routes of movement. The questions then move to interrelated items and end up with sensitive matters such as the problems of privacy and women activities. Answers direct the effort to look beyond the surveyed urban and architectural forms. The analysis of behavioural and aesthetic principles can explore how certain physical forms relate to a particular context.

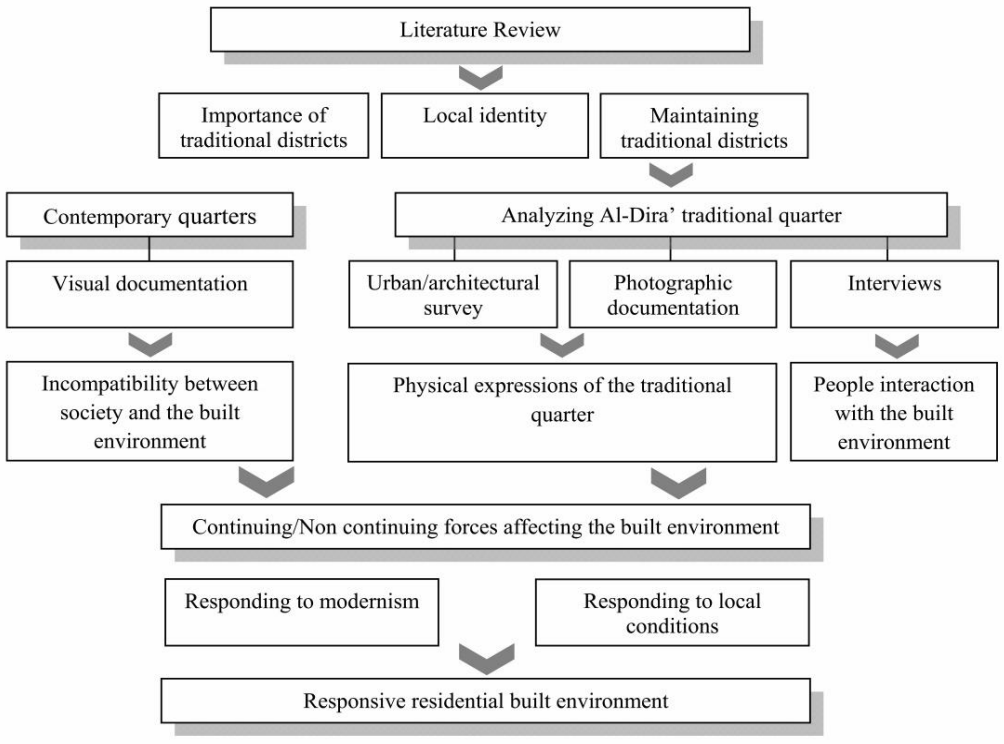

Figure 1: Research Methodology

A visual survey for Al-Rabwa district, a typical contemporary officially planned development in Dumat Al-Jandal was then conducted. Within the survey, the general urban and architectural characteristics were documented. Residents' modifications on the built environment were also recorded. Hence, a comparison between contemporary and traditional quarters can be held. Issues behind the residents' interference on buildings can be explained. Such issues illustrate the incompatibility between society and the built environment. Thus, by considering forces which shaped traditional districts and responding to inevitable modernism, a responsive neighbourhood can be created.

LITERATURE REVIEW

Housing development has been classified into those which grow "naturally" or "organically" and those which are "artificial" or planned (Batty & Longley, 1994). One of the key distinctions is the speed at which development changes; while, another relates to the scale of the development. Organically growing settlements, or traditional quarters as called in this paper, develop much more slowly than those which are planned. Quarters which grow naturally are formed from myriad of individual decisions at a much smaller scale than those which lead to planned growth which invariably embody the actions of larger agencies (Ismail, 2012). These distinctions articulate themselves in clear visual ways. Traditional quarters seem to fit their natural context more comfortably in that if decisions are smaller in scale, they reflect the properties of nature more closely as well as reflecting more intense concerns at the local level. Planned quarters are usually more monumental and more regular reflecting the will of one upon the many (Bakri et. al., 2012).

The visual order of traditional quarters when viewed in plan form resembles cell growth, weaving in and out of the context, closely following the terrain and other natural features, embodying the movement through routes in tree-like forms. Their geometry seems irregular but does not imply disorder (Lai et. al., 2013). Planned development appears more man-made in that the patterns produced are more regular, reflecting more control over the natural context, and the mobilization and coordination of much larger quantities of resources devoted to the development in question. Planned quarters display a geometry of straight lines and smooth curves, built on a directness of movement which can only be imposed from above, embodying some sense of man's direct control over nature through technology. Contemporary plans allocate land-uses to serve an identified number of inhabitants. Such approach did not take into account differences in natural environment, climate variation and cultural; it contributed in part to solve problems but not without defects. Trends called for horizontal extension lead to the depletion of land and urban economy. While, vertical extension had negative impact on density and the increase of land price. Separating public services increased traffic densities and caused congestion (Shin, 2010).

The built environment reflects culture that distinguishes one group from the others (Rapoport, 1977; 2004). Yet, the cultural influences seem to be more evident in traditional houses rather than contemporary mass housing (Altman & Low, 1992). This is basically due to the fact that the traditional houses were individually designed according to the desire of the owners. The mass housing is designed by architectural teams leaving residents to adapt themselves to such designs. Even when architects attempt to benefit from traditional quarters they only borrow the images of the past without understanding the relationship between people and the physical environment (Al-Hamad, 1988). This has not been appreciated by people, who instead refined the new forms according to what they actually accept (O'Reilly, 1999).

The importance of traditional districts for nations and people stems from the embodied values, meanings and connotations of culture, art, aesthete and economy (Al-Zahrani, 2012). Traditional districts highlight human creativity in a specific period including a unique urban and architectural vocabulary (Sozen & Gedık, 2007). Upholding such vocabulary maintains identity and the spirit of belonging (Kurtz, 2006). They constitute a model one can refer to when designing new communities (Yarwood, 1999). A nation looking for the continuity of its culture cannot rely on exotic models and neglect original ones (Ozdemir et al., 2008). Al-Naim (2003) argues that the most important factor in Saudi settlements is the religious believes which call for privacy of women and define a sustainable relation with the mosque to perform the daily five prayers.

Unfortunately, many traditional quarters suffer from ignorance and deterioration. Losing traditional quarters means losing a valuable source of information and cutting the roots of originality that can help formulating the contemporary built environment. Sutton and Fahmi (2002) argue that for the future of our built environment, traditional quarters should be kept maintained. Electing an appropriate approach of conservation requires understanding the physical, social and economic structure of the traditional quarter (Yıldırım & Turan, 2012).

THE STUDY AREA, AN OVERVIEW

According to its proximity to the northern borders of the Arabian Peninsula (Figure. 2), Al-Jouf region enjoys remarkable geographical, historical, social and cultural characteristics. The area derives its name from topography where it is depressed by about 165 meters from adjacent land; Al-Jouf in Arabic means depth or abdomen. Beside the city of Sakakah, the province is divided into two governorates: Qurayyat and Dumat Al-Jandal (Rifai&Rifai, 1990).

Figure 2: Al-Jouf and Dumat Al-Jandal location in Saudi Arabia

Reference: Google Earth, edited by the author

Dumat Al-Jandal, which means literally "Dumah of the Stone", acquires the name from Dumah, the sun of Ismael (Al-Muaikel, 1998). The city has a history dating back to the 10th century BC; and later in the 5th century AD, it became the capital of the Kingdom of Kindah. In 633AD, Khaled ibn Al-Walid, a companion of the prophet Muhammad (pbuh), captured the city and it became a part of the newly formed Islamic empire (King, 1998). The importance of Dumat Al-Jandal continued as a trade centre for Arab tribes known as the market (*souq*). One of the important features in Dumat Al-Jandal is Al-Dira' quarter, which is located in the neighbourhood of Omar ibn Al Khattab mosque. The mosque, built in 634 AD, was situated in the most important junction of ancient trade routes linking Mesopotamia, Syria and the Arabian Peninsula (SCTA, 2010). However, the climate is mostly arid (Chowdhury et al., 2013).

UNDERSTANDING THE BUILT ENVIRONMENT OF AL-DIRA'

Urban configuration

The open space system in Al-Dira' aimed at meeting security, religious, social, environmental and economic needs. Spaces are arranged in a hierarchical manner that provides public, semi-private and private spaces. The district is characterized by a compact pattern of buildings that are irregular in forms grouped together in one bulk. This is penetrated by linear tortuous open spaces utilized for pedestrian and livestock movement (Figure. 3). Pedestrian narrow walkways lead to residential entrances which are elaborately identified. The cross section of walkways is of comparable dimensions. However, respondents indicated that such spaces serve as gathering places for children to play supervised by women who used to assemble to relax and socialize in the narrow pathways. When walkways intersect, a wider open space (*barha*) configures. Informants reported that *barha* plays a significant climatic role as it helps moving air through walkways to alleviate the impact of hot weather in summer. In addition, *barha* is a gathering centre for men inhabitants of adjacent residential buildings; it is also a safe playing place for children under the surveillance of their fathers. Doors overlooking *barha* are situated shifted from each other to maintain privacy.

The circulation system enables inhabitants to move easily from residence to the mosque and the market but that was not that easy for strangers to find their way. The tortuous narrow walkways made the circulation system misleading for those unfamiliar with the quarter in case of attack. Tribal raiding has been a common struggle until the unification of the Kingdom of Saudi Arabia in 1932.However, the limited patch of the quarter puts burden on the inhabitants while expanding their residential buildings. Vertical expansion has become the reasonable option.

From the upper level, the house horizontally extends over the walkways creating (*sabat*). *Sabat* is a bridge building between two neighbours (Figure. 4). *Sabat* play many roles; on the social level, they are an expression of cooperation between neighbours which is supported by Islamic teachings. On the climate level, *sabat* provide shade for both pedestrian walkways and surrounding buildings. On the visual level, it identifies points of transmission from one zone to another creating a beautiful scene while crossing underneath. While on the security level, *sabat* serve as an observation point where residents can watch the passageway within narrow windows (*taqat*) without being noticed. *Sabat* are usually placed high enough to allow pedestrian to pass underneath. Nevertheless, many of them are placed on a height of 1.8-2 meters to surprise attackers in case of a raid. Whereas, private open spaces appear in the form of inner courtyards and roof terraces (*rawshan*) to provide privacy, especially for female members of the family.

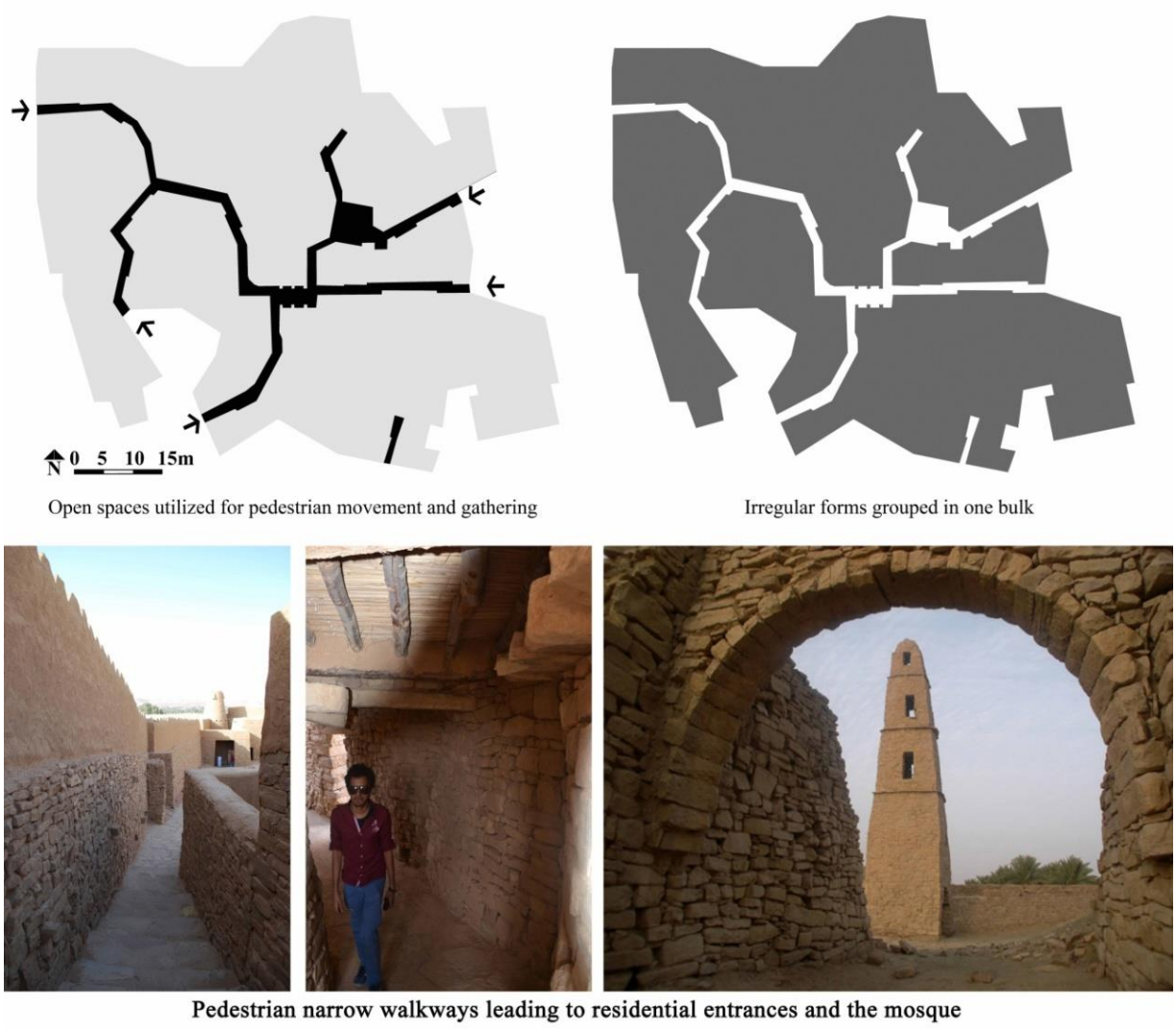

Figure 3: The urban configuration of Al-Dira' built environment

Reference: Photographed by the author A

The residence is the basic configuration unit of the quarter which replicates to generate the district. Dumat Al-Jandal was historically consisting of twelve districts; each of them is inhabited by a different tribe. The quarters are separated by palm groves and surrounded by the city wall. There was an overall uniformity in the urban pattern, architectural design and construction of those quarters which were lately replaced by new ones.

Figure 4: Locations and different views of *sabat*

Reference: Photographed by the author April 2014

The residential units

The residential units of Al-Dira' demonstrate careful planning and conformity with the environment, community and needs. They reflect the values of kinship and solidarity encouraged by Islam. Houses, which exceed the number of forty, are of different areas and number of stories according to the family size and economic capacity. Residences have been affected by many factors including climate, topography and soil properties, religious and other external impacts.

The informants reported that the quarter was established in an accumulative manner initiated by the founder Hasan Bin Dira', head (*sheikh*) of the family who previously governed Dumat Al-Jandal; and from whom the quarter derives its name. Therefore, the sons established their houses adjacent to the sheikh residence. The quarter then expanded by constructing dense grouping of houses in the immediate vicinity. The house could be inhabited by more than one family of the lineage. However, the quarter is not organized around any public space; they are simply clustered together and secured by the gated access.

The design, construction materials and technology demonstrate uniformity of the residences. Residential units of Al-Dira' are built of stones which are brought from adjacent mountains. Clay mixed with straw is used as mortar. Arches and stone cantilever (*tonaf*) appeared as structure systems to cover wide spans. Ceilings are constructed of the indigenous woods, tamarisk (*ithal*) or palm wood. Traditional building materials and corresponding building technology gave the traditional buildings the distinguished architectural character. The construction process takes place in a collective action, known as dread (*faz'ah*), where neighbours participate in various building activities; this reflects the integrity of traditional community.

Al Nassar house, a thematic type of large residences, indicates that the design depends on the courtyard (*housh* or *masyaf*) which represents the main core of activities (Figure. 5).Besides lightening inner spaces, *housh* provides shade and alleviates heat effect. *Housh* creates a comfortable micro climate as cold air is stored in during night and distributed into rooms during day keeping their temperature low. The courtyard insures the privacy of family members, especially females, allowing them to practice domestic activities without being seen by strangers. Moreover, *housh* provides an area for futuristic extension of the family by adding more rooms.

Most residences have two entrances, one for men and the other for women; but quite a few has one entrance only (Figure. 6).Gateways lead to broken entrances which, besides maintaining privacy, are part of the defence plan. In many instances, a bench (*dekah* or *mastabah*) is located beside doorways for men to set on (Figure. 7).The entrance leads to the guest room (*majlis* or *al-kahwa*) which is used to host men guests. *Majlis* is a rectangular room (about 4.8 by 10 metres) with a height of 6 metres. There is a place to set fire (*al-wagar*) on the inner wall to prepare coffee. The ceiling is provided with a vent (*al-sawamah*) to get rid of exhaust. While, the thick walls are supplied with square apertures (*kuwah*) to place mugs, tools and ornaments. However, men suite is usually separated from the rest of residence by a wall. The other side of this wall is the family section (*harim*) which is accessed by the broken corridor. *Harim* contains a female guest room (*lewan*), a number of rooms, a kitchen with a

stove, a toilet (*sondas*), a bathroom (*marwash*), a feed store (*metabn*) and in many cases another courtyard. The courtyard includes a stone staircase (*daraj*) to access upper stories. The first floor comprises a number of rooms (*sakayf* plural of *sakefah*) and an unroofed room (*rawshn*) for sleeping in summer nights. Windows in upper floors are wide but allocated on a high level in order not to injure the neighbours' privacy.

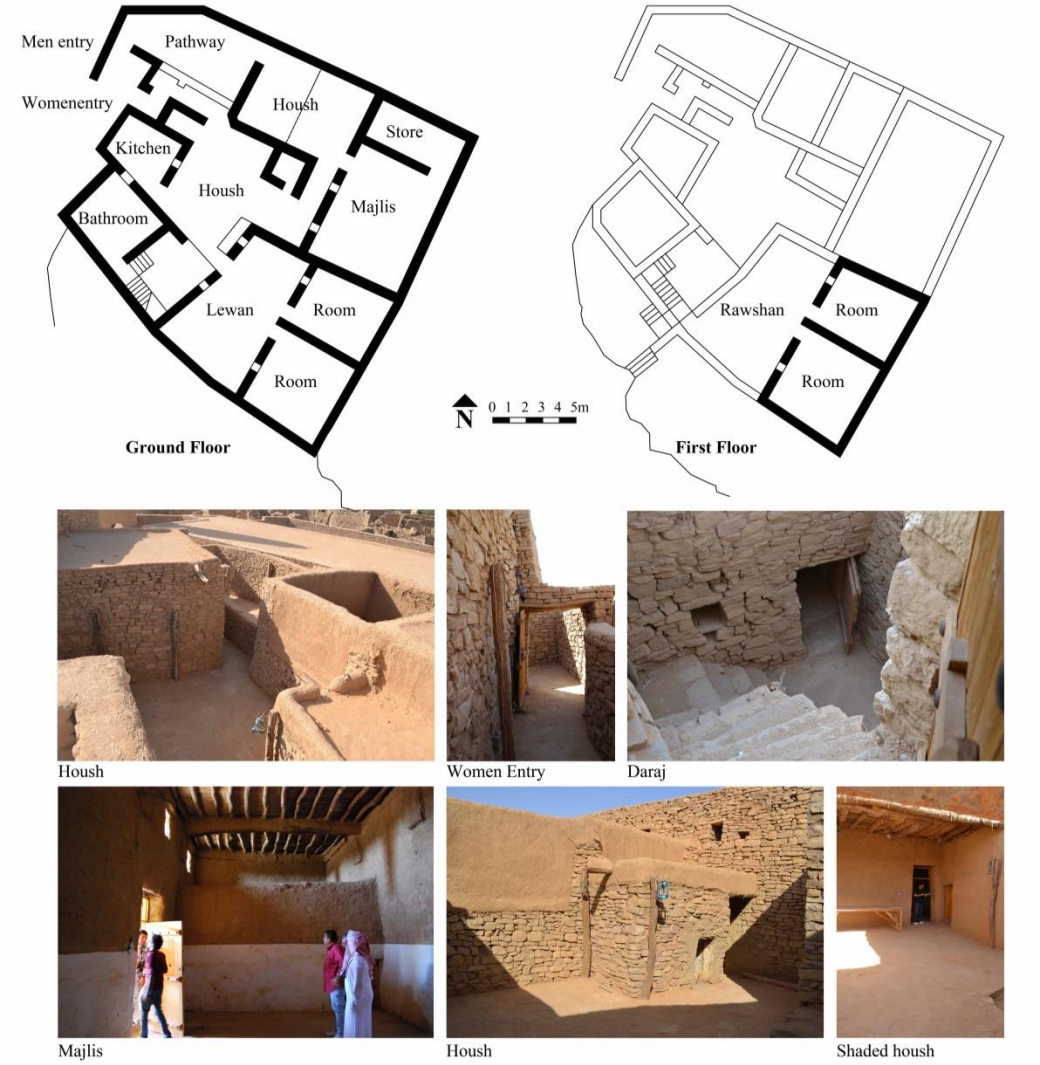

Figure 5: Plans and different views of Al Nassar house

Reference: Surveyed and photographed by the author April 2014

However, both the traditional urban configuration and residential units helped developing a comfortable micro-climate. With its elevation by two meters from agricultural land, and its location on the northern edge of a mount foot, the quarter is protected from the hot dust-laden southern wind; while, the northern summer breeze passes through the cultivated areas and cools walkways and courtyards. Buildings are adjacent to each other to be protected from undesirable sun and wind. The thick stone walls protect the interior spaces from heat absorption in summer. *Sabat* also played an effective role in alleviating the climatic conditions. They provided shade and protection from summer sun creating comfortable conditions in both inside and outside spaces. *Sabat* result in creating air currents and natural ventilation which was enhanced by differentiation in buildings height. The effect of wind funnels is obviously noticed in the configuration of pedestrian walkways and open spaces.

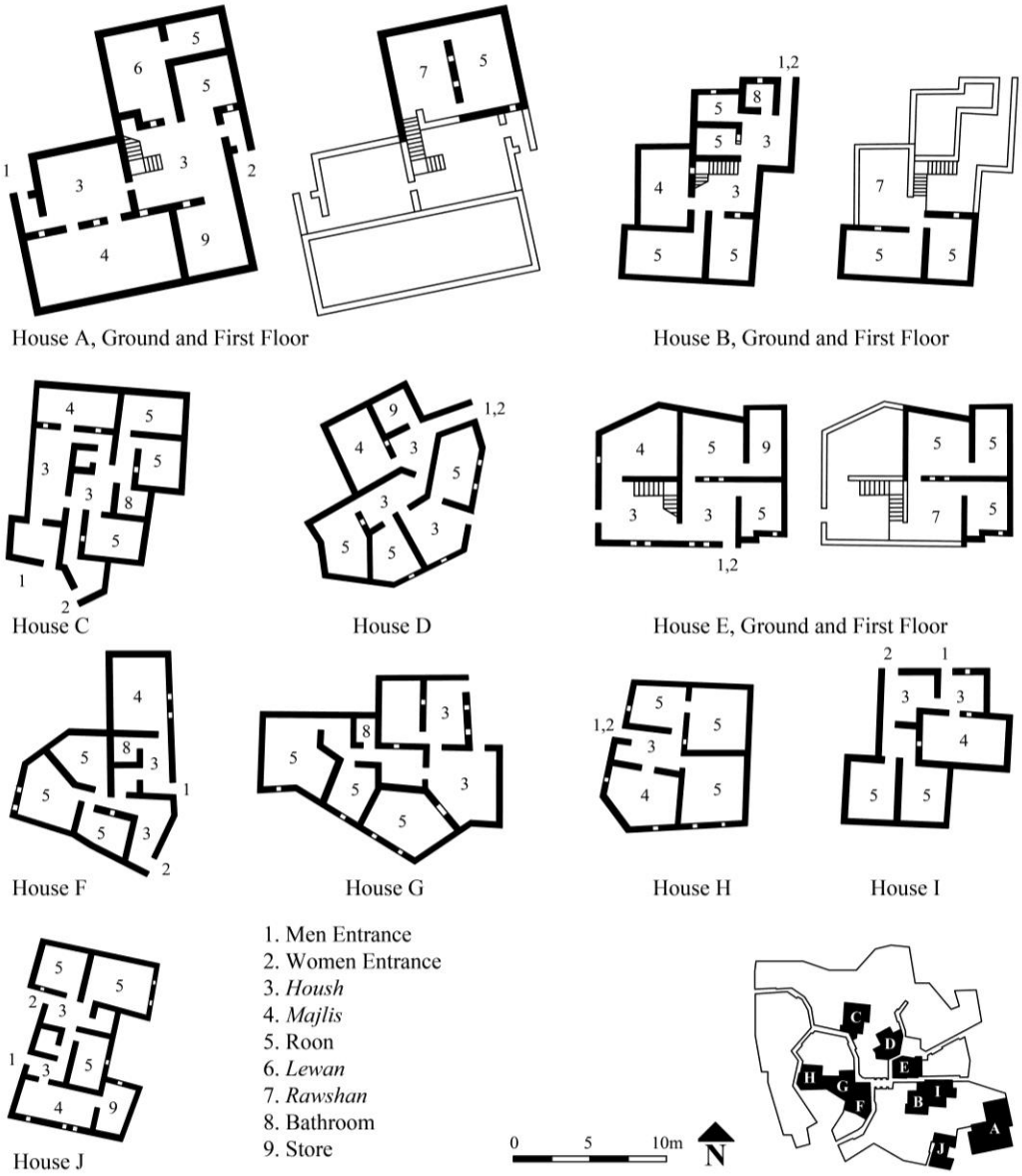

Figure 6: Plans of selected houses of A-Dira' quarter

Reference: Surveyed by the author

Figure 7: Seating areas in *barha* and in front of residence

Reference: Photographed by the author April 2014

Settlement integrated elements

To the southern west of Al-Dira' quarter, the market (*soukal mesahab*) is located (Figure. 8). *Souq* was designed to serve Al-Dira' inhabitants and the surrounding areas. It was located near the mosque along the main walkway on a wide plaza utilized for trade. The market was thus accessible for surrounding residents without entering the settlements. Beside exchanging goods, *souq* worked as a social arena where news and important issues

are announced for public. Whereas, the mosque (*masjid*) is the most important building in Muslim society, its function is not limited in performing the daily five prayers, but extends to act as a centre of social communication. So, main walkways of Al-Dira' quarter lead towards the mosque to facilitate the daily pendulum movement. The mosque minaret is built on the main southern entrance of the quarter with arched gate below. Directing walkways towards the mosque is a thematic feature originated in the Islamic cities. The location of the mosque on the border of the quarter allows strangers to use it without penetrating the quarter. On the contrary of the residential quarter, the use of mosque is available for public. However, facades adjacent to the mosque are mostly solid to protect residents from prayers eyes.

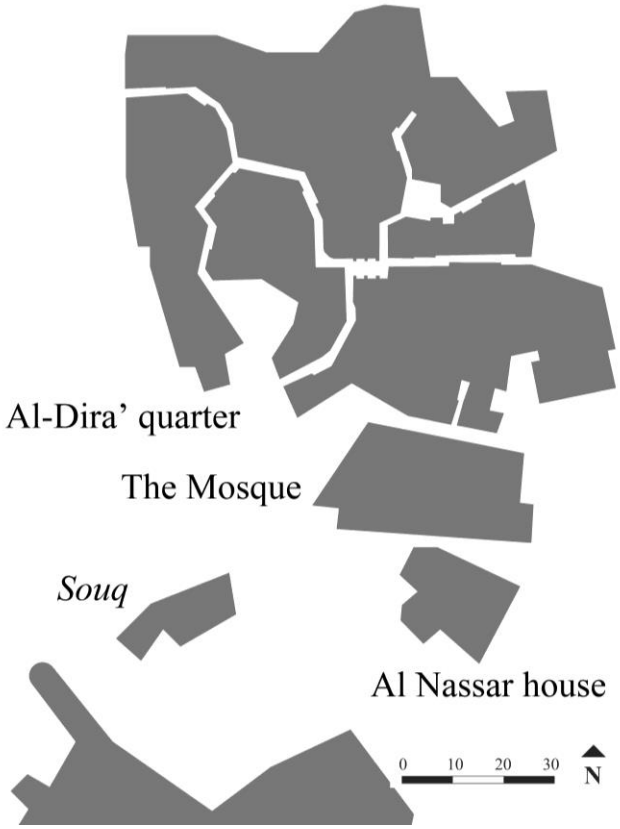

Figure 8: The relation between Al-Dira' quarter, the mosque and the *souq*

Source: Google Earth, edited by the author

CONTEMPORARY NEIGHBOURHOOD, A COMPARATIVE VIEW

The configuration of Al-Dira' traditional quarter was distinctively shaped by an incremental process. The urban components reflected a complex interdisciplinary of functions. So, buildings and spaces were comprehensive to the inhabitants. But, when the process shifted from the hands of indigenous community to central authority, the local appropriate strategies are ignored and the community is left with exotic living environment.

Urban configuration

In Al-Rabwa district, street layout follows a gridiron pattern in contrary with the traditional organic one (Figure.9). Contemporary circulation system gives priority to car leaving pedestrians to move on asphalt exposed to the harsh sun. Spaces in Al-Rabwa plan are limited to public open spaces which mediates the residential clusters. About 50-60% of private spaces are the neglected setbacks enforced by regulations. Such type of development produces punctual tissue in which all sides of the buildings are exposed to the external influences. In Al-Dira', one can easily distinguish between public, semi-private and private spaces that are consciously arranged in a hierarchical manner. The absence of such type of spaces in new patterns of development makes individuals feel isolated. While, the existing large scale public spaces are left vacant. Residents reported that every family has become isolated in its unit with very limited opportunities for social communication. Neighbours in one residential building have become strangers. This somehow explains the absence of community spirit and the sense of belonging. Every family is settled in its unit without any feeling of responsibility for the community. Younger families missed the relationship with their relatives who could support them.

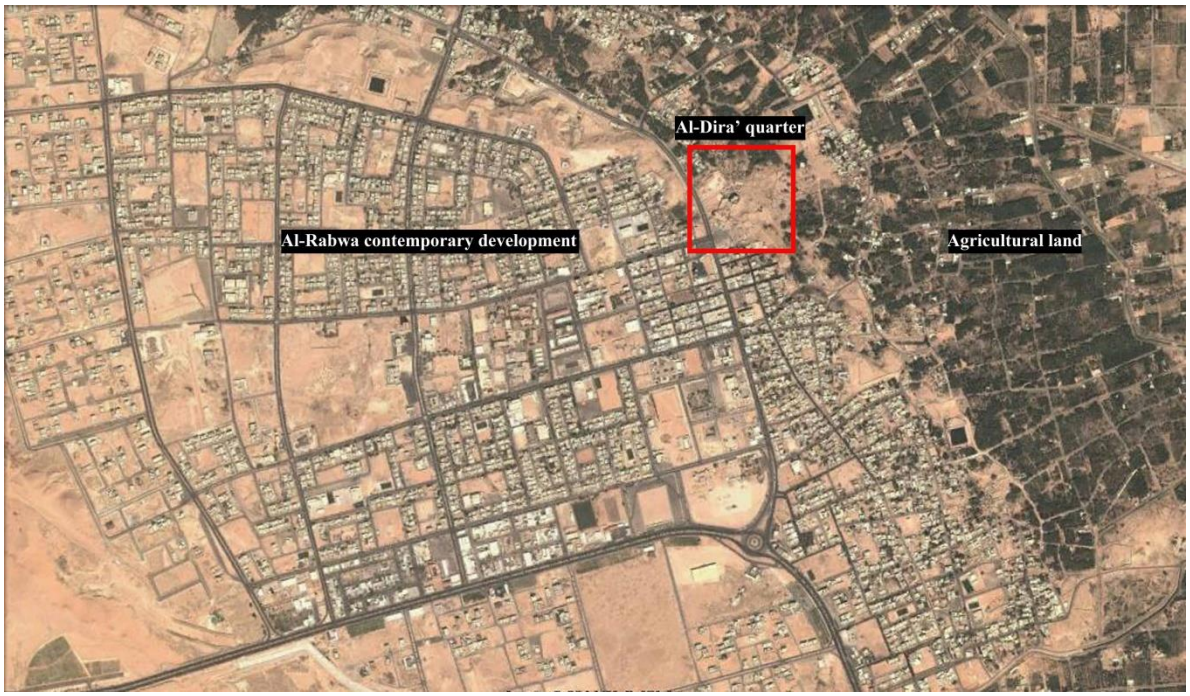

Figure 9: The contemporary streets and land subdivision pattern in Dumat Al-Jandal

Reference: Google Earth edited by the author

The residential units

Two types of housing prevail in Al-Rabwa district; these are private residence and the residential building. The general features of space distribution are expressed in Figure (10). The private residence consists of two levels. The ground floor includes one or more *majlis*, a dining room, a kitchen and the auxiliary services. The first floor contains the bedrooms, the bathrooms and the family living room. A staircase links the two floors. According to the setback law, all spaces are oriented outward through windows or balconies. All activities take place indoor because the outdoor spaces are viewed from adjacent units which injure the privacy of each other's.

In the residential building, the typical floor area is sufficient to accommodate three 2 bedroom flats. Two of them overlook the street, while, the third overlooks the rear setback. The entrance lobby usually separates the flat into the reception and the sleeping zones. Kitchens, bathrooms and the staircase are usually located in the core of the floor from which flats are accessed. Like the private residence, all living spaces are oriented outward. Balconies are the only outer space for flats.

The visual documentation of Al-Rabwa contemporary district indicates that the architectural form and style are alien with little continuity with local or historical character (Figure. 11). Modern buildings can be easily distinguished from traditional ones. They are characterized by the reinforced concrete skeletons, different types of fabricated blocks, cement mortar and aluminium windows in contrast to the stone and wood of the traditional buildings. The effect of climate on the modern buildings was not given enough attention. The building envelop allowed the penetration or transfer of heat to the inside. Meanwhile, unjustified sitting of blocks ignored the effect of cooling wind, while the wide open spaces contributed in over-exposure. Therefore, relying on mechanical air-conditioning became a must. Air-conditioning units, while distorting facades, have negative environmental impacts resulting in burning more fossil fuels and the increase of carbon emissions.

Building regulations produced architectural form that failed to satisfy the requirements of privacy in housing units and open spaces. Large windows and balconies imposed by architects give the impact of opening to outside. Residents found themselves compelled to shut the windows and board up balconies to protect their privacy. Moreover, external fences were increased in height to hide the facades (Figure.12).While, in the traditional residence, opening inward to the *housh* and the enclosed roof terraces simply maintained the privacy. Likewise, in search of a semi-private space, like those provided by *barhat*, current residents attempted to create it in front of the house. Not being thoughtful, fences and barriers of different types and materials result in the poor appearance.

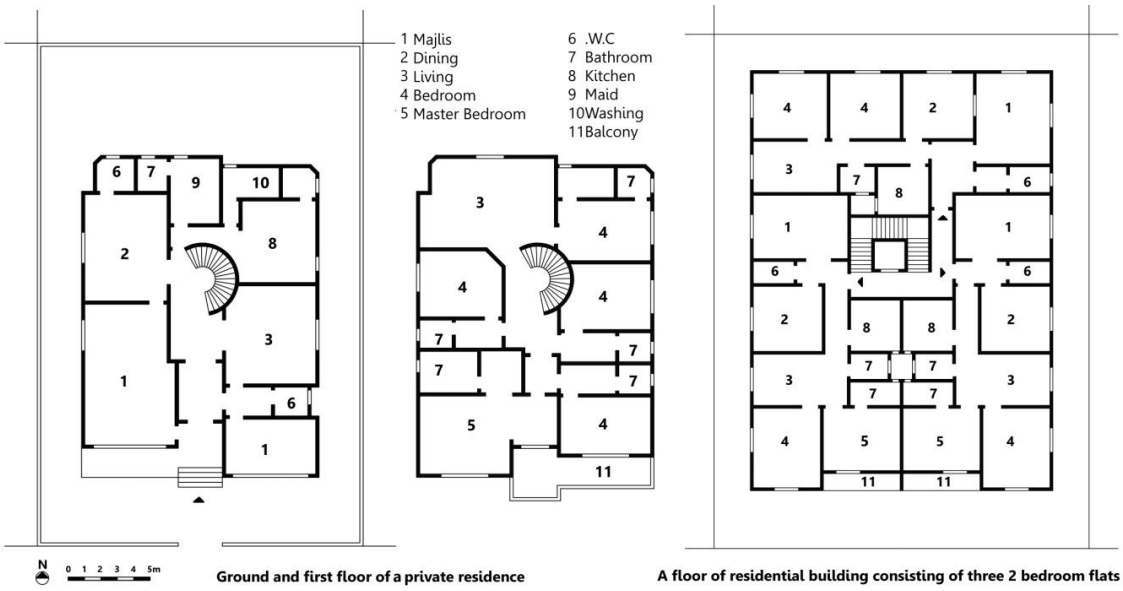

Figure 10: Plans of different types of contemporary housing

Reference: The author

Figure 11: Visual documentation of contemporary architecture

Reference: Photographed by the author April 2014

Figure 12: Some treatments for providing privacy for contemporary houses

Reference: Photographed by the author April 2014

AN APPROACH TO RESPONSIVE DEVELOPMENT

Contemporary practice proves that there is incompatibility between society and the built environment on the levels of planning, urban design and architecture. While, the traditional model, in which the society and the environment are coherent, proves that it is still useful. The analysis of the traditional built environment illustrates integrated treatments of climatic, religious, social, economic and regulatory factors. The question then is how to maintain the traditional values while responding to inevitable change in the built environment. One can argue that knowledge imbedded in traditional quarters contains guidelines for the answer.

There is no doubt that modernization has a positive side that cannot be ignored. It is difficult to argue that the traditional architecture can enhance aspects like hygiene and modern devices. People are continuing to leave indigenous quarters because they do not meet the new standards. However, in a changing world, when a force has no effect an element may disappear or convert. In the Saudi context, many forces accompanied the traditional life have been eliminated. Tribal raiding, for instance, was stopped after the unification of the Kingdom and the changing of economic conditions. This undermines the need for defensible settlements. Likewise, with the development of transportation means, narrow walkways are replaced with wide paved streets. On the other side, many impacts such as the environmental conditions, the relation with the mosque, generosity with guest, and privacy of women are still influential.

The forces that designers face today are more complex than traditional ones which the builder faced in the past. The present forces configuring contemporary built environment might have conceptual and theoretical bases more than those that affected the traditional built environment. But, in general, the role of the physical environment should expand beyond sheltering the functional activities to interact with all human activities and needs. This is the missing part in contemporary neighbourhoods.

To make use of traditional quarters, the forces that shaped them need to be defined. The conscious separation between continuing and non-continuing forces can help defining the physical features which seem worth maintaining or abstracting. Then, the physical products where the continuous forces act are brought into balance against modernization. However, by working from the micro to macro level close to the people, the true affecting forces can be acknowledged and professionals can then conceive the activities people actually require. The fact learnt from traditional settlements is that the creation of a building, a district or a town is a generic bottom-up process.

Understanding traditional quarters can answer questions about the strength of the boundary and opportunities of accessibility, buildings' heights and related densities, the integration of men and women in the social life, the type of relation with mosque, shops and open spaces, the scale of public and private spaces, setbacks against continuous buildings, openings location and size, house entrances position and shape, and the extent of freedom given to car versus pedestrian movement. The answers of such questions can help formulating guidelines for configuring a responsive environment.

On the urban level

The field study indicates that contemporary districts, where buildings and grand open spaces are expanded on a gridiron pattern, proved to be inappropriate. Buildings and spaces shrine to industry rather than things residents care about and enjoy. While, human scale spaces and buildings with identifiable boundaries advocate the sense of belongings allowing residents to know each others. The issue that needs to be addressed is the scale of development. Al-Dira' quarter illustrates that people need a compact identifiable spatial unit to live in and belong to. Compact districts use a smaller portion of land. To help people to recognize the neighbours they live with, a range of 40-50 families (240-300 inhabitants) can be grouped within a clearly defined boundary. If such boundary is too loose the quarter will not be able to sustain its own character. Such boundary can be accessed through a limited number of streets. On access points, and with the aid of residential buildings, naturally designed gateways can be created.

Open spaces (*barhas*) within the boundary, where social system can survive, are not to be very large in order not to look and feel deserted. Special concern should be given for the participation of women in the social life. This can be achieved when the woman feels comfortable in small scale *barha* watching her children while communicating with a limited number of neighbours. With regard to the configuration of spaces, it is beneficial then not to keep the setbacks ystem. Instead, it is proposed to adopt continuous buildings within which private outdoor spaces and positive semiprivate human-scaled spaces are intended not left over. The dimensions of the *harhas* should be intimate so that residents can recognize each other. Open space system can be created within the boundary in an organic hierarchical manner. *Barhas* give a break from the confines of home and allow residents of different ages to communicate in an environmentally interesting outdoor. Spaces are expected to be connected by broken pedestrian network. The environmental benefit of such pattern has been argued before.

When movement network is mentioned, the first asked question is about the car! Car has become a must for Saudi families. This means that a balance between secured pedestrian network and roads for cars needs to be stricken. A responsive neighbourhood should offer a mix of big and small streets; it needs to be easily navigated by

both humans and vehicles, with straight roads for orientation and naturally protected small streets to allow residents to wander and create the sense of exploration. For the time being, contemporary development prioritizes vehicles over humans. Although cars give people choice and increase their freedom, enhancing the social life in the area requires limiting cars penetration up to the gates of houses. This is expected to generate safe places for children to play in and create a chance for residents to communicate while walking. Parking can be distributed in small lots connected to buildings by narrow walkways. For environmental reasons these roads might be covered. Although cars might be dangerous to pedestrians, activities usually take place where cars and pedestrians convene.

On the architecture level

Resulted from building regulations, contemporary district proves that building on a private plot of land led to isolation and soulless. Residents are not satisfied with privacy which is a major requirement for Saudi families. Building is exposed to harsh climate from all directions. Moreover, family activities have become almost indoor. Al-Dira' quarter indicates that residents are concerned to have two types of life, private and visible (indoor and outdoor). Private life is provided in the enclosed spaces or in the courtyards. Courtyard has been, and is still, an important component of the Saudi residence.

When it comes to building configuration, it is impractical to simulate traditional houses which enjoy a great variety of forms. Order is of great importance in housing development in terms of economy and execution timeframe; but, excessive order feels alien. Within a limited number of building models, it is essential to create a sort of organized complexity that comes from establishing parameters like building form, building materials, construction technology andthe shape of openings. There, every component of the built environment is generic, allowing a harmonious framework in which individual elements can vary but creating a kind of unity in the neighbourhood.

Building forms could be kept simple but with sensitivity towards environmental factors such as orientation and shading tactics. However, buildings' heights should be kept low to maintain privacy. Likewise, position and shape of building entrances and openings are to be carefully positioned. To reflect specific identity or character, there is a need to use the vocabulary of locally sourced architecture that is derived from the specific materials, culture, climate, history, and social traditions of a given region.

On the basic communal services

With regard to the allocation of basic communal services, people want to be close to the mosque to perform the five daily prayers. While, the relation with *souq* and services varies from one to the other, some want to be close to them, while, others want to be away for quietness. The balance between these two desires determines their location in a quarter. The boundary region can hold a place for the common services shared by inhabitants such as the mosque and the *souq*. Buildings can configure an access *barha* that is linked with the main pedestrian spine to realize the required balance. However, these services can be shared by adjacent quarter(s).

It should be kept in mind that responding to local conditions cannot happen within a nationwide set of regulations. As indicated above, many recent building codes and related management regulations are not in line with the environmental conditions or the people's social, cultural and economic formation. Therefore, building regulations need to be reformulated leaving flexibility for practitioners to decide about local issues. This is likely to achieve the desired balance between modernization and the careful consideration of the residents' background and conditions.

The proposed approach has been a theme of a project for Master students of one of the Saudi faculties of Architecture. The project aimed at examining the applicability of the proposed approach. The project intended to design a responsive quarter that reflects the importance of social relationships while making reasonable order and respecting environmental issues. The product proves the ability to produce integrated urban forms, buildings that accommodate actual needs of the residents and reflect local identity, environmentally sensitive context, and socially accepted development (Figure. 13). Beside the basic components, the quarter was supplemented by two halls, one for men and the other for women, for a resident to use in case he needs to receive a large number of gusts. Such item has not been existing before in traditional district, but it is a new way of expressing the inherited Arab tradition of generosity. This is not an alternative for *majlis* in which a limited number of guests used to be hosted, but it is a contemporary expression of traditional custom in different condition, which is the improvement of economic situation. The approach discussed is not rigid; it is flexible wherever in accordance with the community needs. Of course there is a range of issues that needs to be investigated in depth like the land subdivision pattern, the land ownership, the economics of infrastructure, compatibility with regulations and the stages of execution that keep the image of the quarter appropriate until it completes. But, the approach is just a step towards getting out of the present rigid pattern of development.

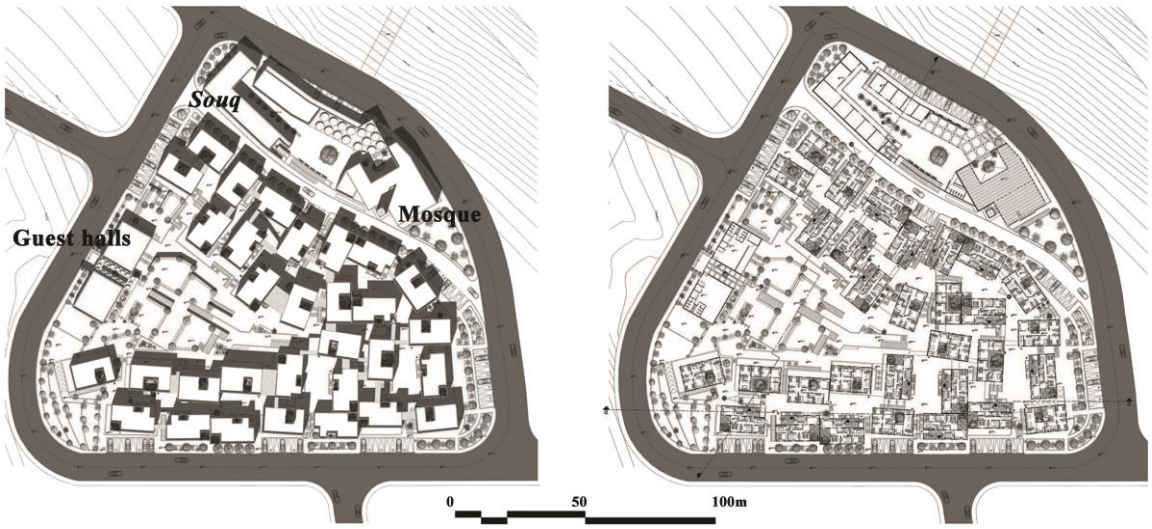

Figure 13: A contemporary quarter generated with the aid of the proposed approach

Source: The author

DISCUSSION

There is no logical explanation why the contemporary housing cannot be designed making use of both the traditional features and modern technology to introduce interesting forms instead of the present ones. The reasonable answer is that the natural evolution of the traditional quarter has been interrupted. While, by adopting the ideas of the traditional quarters to be implemented through modern technology, the continuity of identity and the socially acceptable way of life can be maintained. A major part of the dilemma is that professionals (planners, urban designers and architects) work from the macro to micro scale. At the end of the process, the architect is obliged to work within a given plot or alike. While, in the traditional quarters, the process is reverse, i.e. urban form is derived from architecture.

Although planning and urban design produce thoughtful visible forms and spaces, the interaction between people and space is still absent. While, in a traditional quarter it seems that buildings and spaces speak the same language. This is not to under-evaluate the role of planners and urban designers but to indicate that they need to be equipped with knowledge acquired from traditional environment. They must first define the physical features of the place. Then, they must define the forces that resulted in the creation of such features. Finally, they must define the range of contexts where this system of forces and the physical product are brought into balance. Such knowledge will enable them to identify weakness and strength points in their proposals. The difference between architecture and other design processes on the wider level should be in aspects like scale, complexity and sequence but not substance. According to context, professionals will find a variety of local integrated systems. This variety provides opportunities to develop and elaborate the intended responsive environment.

As building codes and regulations represent a part of the problem, the creation of contemporary quarters that pay attention to traditional values requires a comprehensive set of regulations that ensure the appropriate implication of local elements. The domination of such elements will maintain the production of responsive built environments that satisfy the community needs and sustain identity.

CONCLUSION

Contemporary development proves that very little was done to take advantage of traditional ones. Meanwhile, the analysis clarifies that traditional quarters are a unique type of development in which each part is integrated by its position in the whole. They reflect the complex interdisciplinary of functions where buildings and spaces are interweaving resulting in a deep feeling of communal, environmental and social integration. This research suggests that the desirable qualities of traditional quarters in relation to building configuration, facade treatment, circulation realm, positive open spaces, and privacy could have implications for the planning, the urban design and the architecture of new development. This can be achieved if an in-depth analysis of traditional built environment is available and an opportunity to understand forces that shaped its physical features is obtainable. Maintaining continuing forces through the physical products of modernism is an appropriate approach to responsive environment. Building codes and regulations can be re-tailored to play a significant role in such direction.

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