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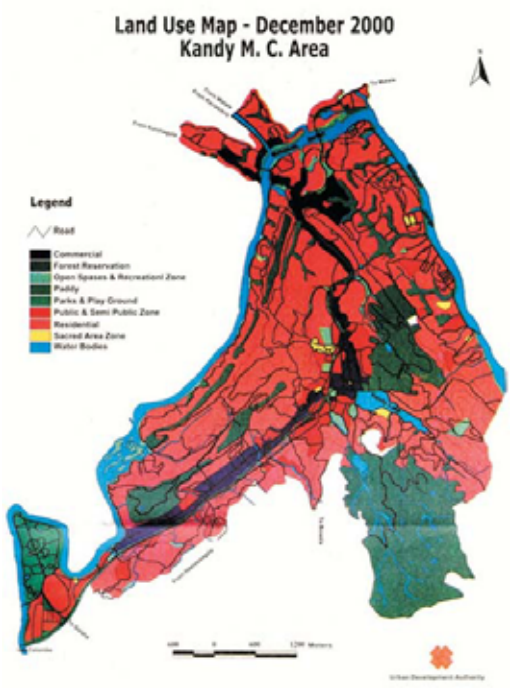

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CONTENTS

EDITORS' NOTE

This issue of JRAP includes five papers, on very varied topics, ranging from city heritage issues in Kandy, to development of housing in Poland, to authenticity of the house form in Karachi, to social and economic role of public squares in the Old Town of Lahore, and lastly to a study of environmental perforations in the built form and the repsonse to climate. Two papers included in this issue were presented in the First History Group Conference in 2013, which was organised by the Department of Architecture and Planning, NED University of Engineering and Technology.

The first paper theorises the relationship between heritage-city, place-identity and urban-tourism, and applies it on the case of Kandy, in Sri Lanka. The role of tourism and place managers in developing the economic sustainably of the city is analyzed, within the global paradigm of applying universally-appreciated values and activities on the heritage city, making it kitsch and threatening its unique identity. The role of management planning in giving the city a new lease of life is questioned through discussions on land use patterns, development of screening and controls, fiscal management and organizational structures. The second paper outlines a research method to measure and relate various housing developments in Poland, based on density indicators. This paper critically analyses the development of housing in Poland between 2000 and 2010. The impact of socialism on the concept of a housing estate is reviewed, along with the utilisation of large rural areas on the outskirts of most cities for single-family housing. The Silesian Metropolitan Area is taken as the case study.

The third paper analyses the evolution of three housing typologies within Karachi: the Hindu *Ghar*, the Colonial Bungalow and the Parsi *Khanay* (House in Persian), with respect to their response to the social, economic and climatic needs of the city and its dwellers. The relationship of the house with the urban morphology, the tangible and intangible aspects of design, and the amalgamation of local social values and sense of aesthetics, versus global imagery, are analyzed with respect to the chronological evolution of the three housing typologies. The fourth paper explores the residential clusters of the old city of Lahore, and the unique qualities that the public spaces, that is "*Koochas*" (piazzas or squares) offer, and the planning and design lessons that can be drawn from them, as most appropriate socio-culturally built environments. The last paper highlights the importance of focusing on solar sensitization with reference to solid void orientation, and solid void proximity in any built form. This paper is based on spatial surveys and analyses of building envelopes, to design environmentally sensitive buildings.

This issue of JRAP has a book review of 'Exhausted Geographies' edited by Karachi artists Shahana Rajani and Zahra Malkani.

Editorial Board

HERITAGE CITY, PLACE IDENTITY AND URBAN TOURISM: SUCCESS STORY OF A WORLD HERITAGE CITY•

*Harsha Munasinghe**

ABSTRACT

Heritage-city, Place-identity and Urban-tourism are themes that have become synonymous. Tourism, considered as a windfall gain for bringing extra revenue, reviving cultural activities and shaping positive images, dictates the place management in the heritage-city. As a result, globally-known and universally-appreciated values and activities are enforced on the heritage city, making it kitsch and standardized, thus threatening its unique identity. There are some exceptional cases where the place managers have been able to achieve a balance between place-identity and urban-tourism. By framing the research problem through a literature survey, a morphological analysis of the heritage-city of Kandy in Sri Lanka was conducted, where such a balance has been instigated. It was noted how the tourists use the city, when and where they impact place-identities, and how the city and place managers have responded. The aims were to prepare the grounds to appraise an effective management of heritage, identity and tourism, and to rephrase its success. The impact on place-identity first challenged the evolution of city-life in Kandy, but the management planning eventually changed this impact, giving the place a new lease of life. The adopted land use patterns, development screening and controls, fiscal management and organizational structures struck a win-win-win situation in Kandy.

Keywords: Heritage, Place, Tourism, Culture and Kandy

INTRODUCTION

The intermingling of heritage-city, place-identity and urban-tourism has a history of promiscuous affairs. Initially historicity and tourism found comfort in the company of each other with heritage producers and place managers reveling in the windfall gains. The mutual infatuation helped the heritage producers to find new sources of financial support and quantifiable justifications for their activities that turnstile receipts with tourists paying for the so-called cultural activities such as heritage sites, museums, galleries, souvenir shops or tills. Tourism industry, on the other hand, found heritage as a new product to satisfy its rather selective, fickle and fashion-prone demand with heritage-city offering ubiquitous, freely accessible and highly diversified alternatives. The heritage city offered a prolonged life to tourism too.

Kandy, with a living population of about a hundred thousand, is enlisted on the World Heritage List since 1988 under the categories IV and VI. The city was built in the 14th century as the seat of the Sri Lankan kingdom in a wooded valley secured by mountain ranges and the longest River, Mahaweli (Figure 1). Since the possession and exhibition of the sacred tooth relics of Buddha was a major responsibility of the then King, the city was planned around the purpose-built Temple and the Royal Palace, juxtaposed in the central urban precinct. The king could paint the image of the caretaker of the tooth relic (Figures 2 and 2a).

The street layout spreads out from the precinct and the spatial clustering attest to the most significant event, carrying the relics in a procession annually as a way of paying homage and a way of showing off its possession. The city accrued further layers with its conversion into the administrative cum commercial centre of the central province during the British rule (Figure 3). Today, Kandy is the most sacred city of the Buddhists, and a place for leisure which is visited by tens of thousands of tourists daily. With its distinctive city plan, land use and built forms, Kandy has acquired its own place-identity and is proclaimed as a cultural heritage site for attesting to a particular cultural evolution pattern for more than 600 hundred years. Its uniqueness is mostly created and protected by the distinctive living traditions the locals are continuously engaged in. Tourism has become an economic boost to those activities and to the continuity of city's place-identity. The heritage-city has its historicity expressed through designation and interpretation with the aim of using tourism to support their revenue bases. Its endowments may have come from a particular past and are projected to an imagined future, but the decision making

• This paper was presented on behalf of Dr. Harsha Munasinghe at the History Group Conference 2013, organized by the Department of Architecture and Planning, NED University of Engineering and Technology.

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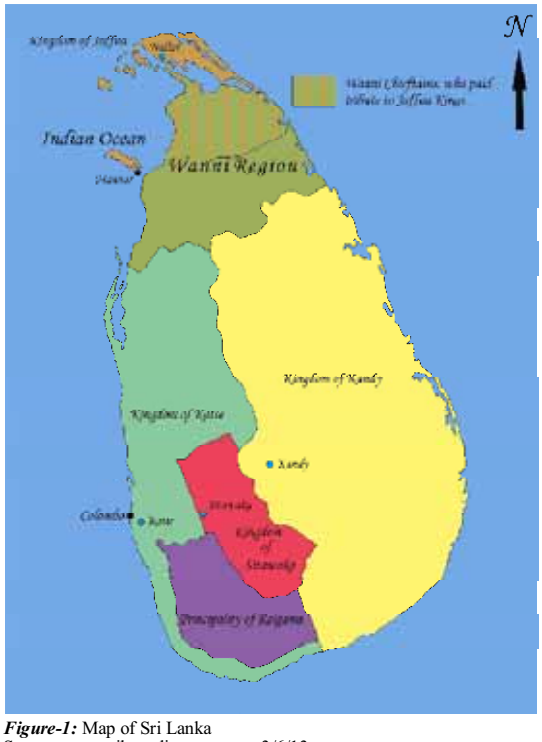

Figure-1: Map of Sri Lanka
Source:www.wikepedia.org access 3/6/13

Figure-2: Wall painting depicting the arrival of tooth relic
Source: en.wikepedia.org access 3/6/13

Figure-2a: Temple and Palace complex set against the forest range, and the artificial lake that depicts the mythical milky ocean
Source: en.wikepedia.org access 3/6/13

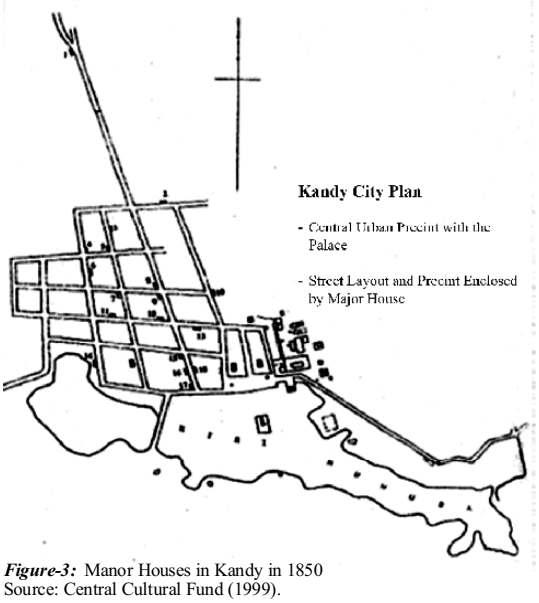

Figure-3: Manor Houses in Kandy in 1850
Source: Central Cultural Fund (1999).

with regards to protection and presentation represents the present-day value system to manipulate the economic role of tourism.

In Kandy, the place managers have noted the sources of economic instruments for their development strategies with tourism offering high return on the existing heritage resources and have made attempts to exploit the additional benefits such as enhanced local identity, social cohesion and favorable image. They make attempts to induce a win-win result by preventing the extra consumption from spoiling the heritage resource and its dependents.

The impact of tourism in any heritage-city varies not only with the magnitude but more significantly with the type. The strength of local tourism, the continuous engagement of locals in cultural activities and proclaiming the city as the pinnacle sacred place of a majority have demanded the shaping of a particular place management. The integration of heritage-city, place-identity and urban tourism in Kandy attests to an instructive case.

The evolving relationships between heritage-city, place-identity and urban-tourism in Kandy with aims to prepare grounds to design a management plan has been studied here, that would protect the heritage-city as a habitat. The data has been collected through literature review, qualitative field research and a morphological analysis.

City and Heritage

City and heritage have had an understanding since the city was shaped as the space of a civilized human. Kandy, the seat of the kingdom also had the specific role to play as the home for the relics of Buddha, and as such was designed and built as a monument. The social structure and the social order, as well as the evolved value system of the society accommodated within the city limits and then in the surrounding villages, and the close links the city builders maintained with South Indians, shaped the unique city and an urban architecture. As an urban space it has contained and nurtured a unique culture, whose evolution is expressed through tangible and intangible heritages. Three basic attributes of the city that have a direct bearing upon creating its heritage value are the size, spatial clustering and urban design. With a critical volume of human interactions occuring in a spatially restricted area, Kandy has become a unique urban space. The demographic concentration and the diversity within a well-defined urban space represent the particular relationship between the tangible society, that is geographically-defined, and the intangible city culture that is named after the prosperous kingdom. The role of Kandy diversified with its crowning as the administrative and commercial centre during the colonial era. New buildings were added and new spatial orders and land utilization were defined, thus stratifying cultural layers of the city. The ethnic diversity and composition changed during the colonial era, signifying new spatial clustering, built forms, place making and value ascription. The urban form of Kandy, largely determined by geographical restrictions, was diluted as the connectivity to other cities was then given a higher priority. The post-independence developments started sprawling along the main roads and crowding around the main transit points: the bus station and railway station were thus construted. The city went through a transformation with its heritage values being diversely ascribed and appreciated after inscription on the World Heritage List (WHL).

Heritage conservation emerged in Sri Lanka as a major socio-economic activity with the economic liberalization in 1977 that promoted physical developments in cities. The threat to the heritage city was eminent, but the government established the Central Cultural Fund (CCF) in 1978 to frame a comprehensive approach to protect such cities as Kandy. The CCF developed place management strategies with aims to reaping the benefits of cultural tourism and diverting the income to heritage protection. Its efforts brought successful results in declaring and protecting the heritage-city with its diversity and integrating heritage protection in the development agenda. It also encouraged the involvement of the private sector in heritage management. The enactment of Kandy Heritage Foundation and urban development regulations strengthened the existing law, resulted by the new thinking, supporting the place managers to act in a different scale and context. Most importantly, demarcation of the heritage-city and then, to a great extent, the reclaimation of its place-identity are direct results of the establishment of the new foundation. Kandy has become a heritage city by being a setting of an evolving society. All its components possess a heritage value for representing that particular evolution. However, even the new laws do not respect all the layers of the heritage-city but a few selected moments of its history. They seem to have noted the market value of the exotic historicity to promote tourism, justifying its protection with economic benefits. The policies have not tested the strength of heritage in creating employment, enhancing the urban diversity or opportunities and absorbing the private sector which would in return benefit by creating positive presence in the local communities. Heritage values in Kandy are not interpreted for facilitating development and raising living standards to its potentials.

In Sri Lanka, land is managed by the central government and the local authorities have no power on land or the heritage, which is tied with land. The CCF, having its officers stationed at municipality, strengthens this centralized decision making. The municipality is expected to manage the heritage-city but services such as roads, water, energy, transport and communication are provided by centralized authorities that are not answerable to the municipality. The sole income of the municipality is the municipal rate collected from some businesses and residents, whereas the taxes are collected by the central government. With heritage managers pushing for the replacement of commercial activities with cultural activities such as galleries or museums the income of the municipal council may dwindle. The development approvals in the city are permitted by the municipality but the decision making is dominated by the state authorities that represent the central government. The procedure is rather slow and cumbersome as some of the regulations are not development friendly but advocate a freezing of the physical fabric and repetition of building elements in order to enhance the place-identity without studying the evolving morphology of the place and changing demands of social life. The fuzzy interaction of various authorities has messed up place management, functional association and spatial design in the city, making a negative impact on the relationship between city and heritage. The lack of effective positive synergies to facilitate the integration of heritage and its protection in a broader urban design strategy seems to have drawn a clear line dividing a living city and a dead heritage. It is possible to notice the misinterpretation of heritage values and degrading awareness of the cultural significance of heritage as a result of focusing onto one exotic historicity and perfecting that for one fragile market, tourism.

In Kandy, it is proposed to shift the commercial and administrative activities added during the British rule out of the inner city to make it the pure sacred city of the Buddhists. These additions of the British era not only undermine city's present-day cultural significance that evolved with the Temple of Tooth Relic and the pageant, but also cause heavy traffic and air pollution (Figure 4).

Figure-4: Traffic congestion within Kandy

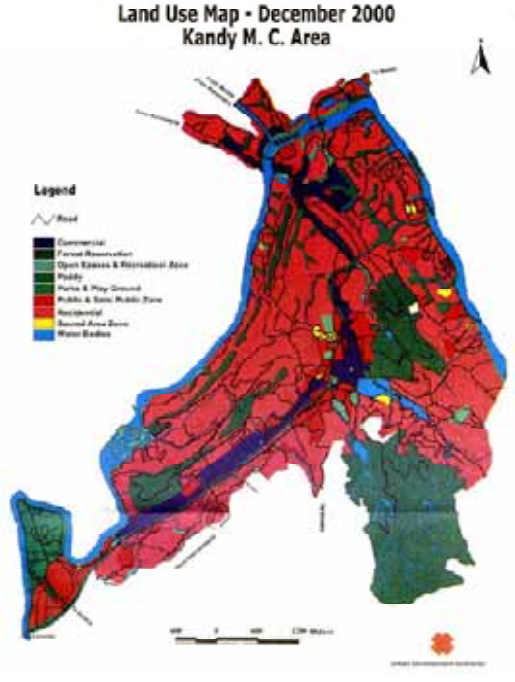

Figure-5: Land use Map - December 2000, Kandy M.C. Area
Source: Urban Development Authority, 2000

Their eviction would leave the city with significant vacums in the urban form in addition to damaging cultural layers. The Kandy Development Plan (KDP) enacted by the Urban Development Authority (UDA) promotes the city to be developed as a set of mixed use zones and proposes restrictions on type and scale of new developments (Figure 5). By proposing architectural guidelines in those zones with particular land use and built form compositions, the KDP aims at protecting the image of the city (Figure 6). As a whole, this place management document is comprehensive enough to sustain the liveability of the city. Yet, the development plan has not paid due attention to the particular relationship between the city and its heritage, and as such has not addressed the potentials of the city continuing as a heritage-city with a living society (Figure 7). Its architectural guidelines have largely been restricted to building elements and they do not deal with architectural types, spatial orders or morphological compositions. The plan has not paid attention to the multi-ethnic value of the city and how that particular quality itself is an inherent heritage value of Kandy, shaped as a juxtaposition of Sri Lankan and South

Figure-6: Built form within the heritage city of Kandy

Indian urban concepts. The cultural engineering proposed in the plan seems far-fetched but may not create a sustainable city for solely depending on the physical forms and for treating buildings as mere shells.

It must be understood that the city is a living organism and it evolves with its successive societies, thus becoming a heritage. The living society and its activity patterns add layers of existence, diversifying heritage values of the city. A frozen history would discontinue the city life and an empty city without an evolving city life may become a city in extinction. It is essential to develop a clear understanding of how the city has accrued heritage values and whose heritage values should be given priorities managing their future.

City and Tourism

The city has been a tourist destination for a long time. Most tourists visit attractions in the city which are the repository of social and cultural developments. Heritage buildings or districts and cultural events make the city more attractive for tourism. Most cities present their heritage for touristic gains. The urban form of the royal seat of Kandy was originally shaped to enshrine and exhibit the Tooth Relic, and as such was essentially designed to accommodate visitors. Its elevation to the provincial capital and inscription on the WHL further challenged Kandy to accept more diversified visitors. The city is blessed with heritage resources, tangible as well as intangible, to attract and sustain tourism as it occupies a pivotal position in the regional hierarchy. The annual procession of Kandy, arts and crafts that evolved with enshrinement of the relics and the particular way of life and art forms that resulted by the close relationship between Sri Lanka and South India developed during the latter parts of the Sinhalese Kingdom; and have made the multi-functional city to attract multi-motivational visitors. Kandy, with its history, climate, symbols and associations of social and cultural significance is increasingly becoming

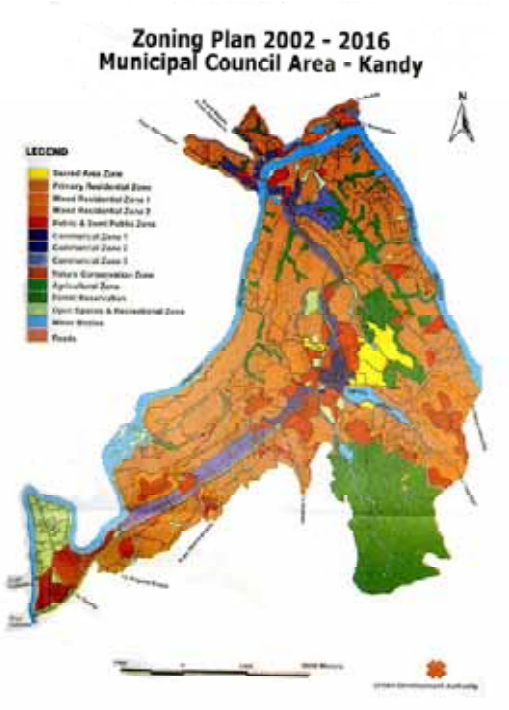

Figure-7: Zoning Plan 2002 - 2016 Municipal Council Area - Kandy
Source: Urban Development Authority, 2000

a destination in the global tourist map. Among the reasons for its new-found significance are the surrounding regions known for various arts and crafts, their celebrations in festivals and their unique place-identity.

Heritage managers attempted to clear the post-royal additions and to enact laws to regulate the external shells of buildings to strengthen the exotic place identity of Kandy (Figure 8). The CCF initiated the restoring of historic splendor of royal-cum-religious precinct by cleaning up its irrelevant additions. This was a justified correction of the urban image, but extending such cleaning up all over the city to complete a tourist-oriented museum-city may cause the loss of city image. The emergence of heritage centers, galleries, museums and souvenir shops as well as the new buildings wrapped in colonnades and pitched roofs are the advocated management tools that exclusively aim at promoting the market values of Kandy as a tourist product. The Kandy Arts and Crafts Centre is among the most tangible witness to converting city's life into a tourist product. These institutions disassociate tangible products of the place-

Figure-8: Will the tourists or city managers want hardware, paint, wholesale groceries or even steel furniture? The traffic is mostly created by the impractical and unsuitable land use

specific ways of life from their true cultural significance in order to promote tourism. The most disturbing in this is the friction created between the dominating local attachments to the heritage-city and the tourism that is only considered for financial gains. The streamlined focus of financial gains through tourism has obscured Kandy's heritage value. It is essential to study the potentials of tourism in enlarging heritage awareness, diversifying values and supporting the continuity of activities and living patterns, which are the intangible aspects of heritage.

Kandy receives more day visitors. Thousands of local tourists visit the Temple of Tooth Relic daily and over 90% of them spend all their time in the religious-cum-royal precinct. It is found that around 80% visit only the temple and not any other historic buildings even in this precinct. The locals spend the nights during the annual pageant but hardly use hotels or other such facilities as they enjoy the pageant related activities throughout the night. The foreign tourists sometimes spend a night either to watch the pageant or while transiting. They also consider the temple as the main attraction but do consume the rest of the city beyond the central precinct. It is a fact that the rest of the city could attract the visitors if those other city quarters are better presented. Our data suggests that even the locals could be encouraged to visit these quarters and spend a night if at least the urban precincts that are in close proximity to the central core are well maintained and managed as a part of the heritage-city. For example, Colombo Street that is filled with hardware shops, furniture shops, etc., creates heavy traffic and nuisance. It could be reinterpreted as a heritage zone with its historic buildings conserved and re-purposed for activities that represent Kandy's historic values. In addition, such an urban zone would diversify the city and facilitate possible public-private partnerships for heritage conservation and sustainable development in Kandy.

The local pilgrims enjoy the free ridership to the temple though they make generous donations. These donations are not diverted to manage or conserve the premises and as such the local tourism makes no financial contribution to the management of the heritage city. Yet, their visits make the city alive and demand the continuity of city's living traditions, and therefore make an indirect contribution to city's socio-economics. The only income earned by the Kandy Municipal Council (KMC) from their visits is through the parking tickets. The KMC has built a multi-storey parking facility, which is used heavily throughout the day. This facility has brought much needed parking space to Kandy and added diversity as the upper floors of this building facilitates more functions. The proposal to add a convention center on the top most level will enhance city life and improve tourism. With the colonial period prison about be moved out of the city center, the KMC will get another opportunity to add a facility to strengthen city's livability and economic performance. Since urban tourism in Kandy has activated the regional economy and the job market, it is justified to make this facility a more tourist oriented one.

Place managers often believe that tourism is the single social and economic trend that justifies heritage protection. Silberberg (1995) has illustrated how the tourist preferences in heritage sites have changed in North America. He documents a visible shift from 1980s focus on escapism

typified by luxury expenditures, to 1990s focus on enrichment reflected in the consumption of historical, cultural or even spiritual places. Kandy is able to cater to these changes but the place mangers have not responded to the needs or trends. The supply of historicity is usually less responsive to tourism demands in Kandy than to wider social needs. It is therefore not explicable with growing foreign tourist arrival. There, the tourists are attracted to the sense of place itself, composed of many broadly defined cultural attributes that may not be known to them. They are only attracted to the tangible by-products of those cultural activities.

Heritage tourism in Kandy is essentially both a special interest and place specific, but only accounts for a part of each of those categories. The growth of tourism as such has enhanced the heritage discourse of Kandy, diversifying the heritage-city and its values and enlarging heritage awareness among the locals. The universal proclamation and the new cultural facilities promote more local visitors too. Yet, the place managers' promotion agenda of the city as a heritage destination does not accommodate these locals, most of whom are of a lesser buying power. These locals should be encouraged to enjoy their visit, more than just visiting a museum to look at an artifact kept in a concealed enclosure, making an impact on the heritage discourse or the socio economic discourse.

Urban tourism is place-specific and includes a range of cultural attractions as a result of an urban way of life, thus representing the place too. Jensen-Verbeke (1997) classifies cultural tourism into three categories; as culturally motivated, inspired or attracted, emphasizing the essential vagueness of the idea of cultural tourism. Kandy is instructive in explaining these three distinctions of urban tourism with closer overlaps among them. It is important to note that those art forms evolved with the traditions of paying homage to the enshrined relic have become a heritage in Kandy thus promoting all three types. The place managers seem to have misinterpreted this place specific nature of the arts and buildings in such a way that they have encouraged the imitation of their tangible components rather than facilitating cultural continuity (Munasinghe, 1988). They stress that the modern art and architecture do not fit comfortably into their heritage tourism agenda, thus they advice the developers to repeat historic typologies and building elements. The result has been the death of creativity and loss of continuity. In Kandy, it is argued that built forms are conserved for their historic significance or associations, but the aesthetic quality of their historic charm takes precedence when it comes to decision making.

In the inner city, the remolding of the place-identity takes place in a substantial scale to attract more affluent consumers. The exploitation of resources and free ridership has made to cast off tourism as an irresponsible exploiter, degrader and a heritage-polluter. Many residents complain about visual intrusion of the tourists and limitless enforcement of unbearable restrictions on their habitat by the authorities. The psychic damage of authenticity, integrity or perceived qualities of the city as a habitat is growing in the fort city, losing its living society as the end result. The heritage producers are aware of the spatial and functional selectivity of tourism, but have not been cautious enough to balance costs and benefits in the allocation of local costs.

The resources used in the production of heritage tourism have four characteristics; variety, ubiquity, shared-demand and marginality (Ashworth, et.al. 2007). The tourists consume a wide variety of heritage goods and services whether they are intended for them or not. An inevitable incomplete inventory of such resources includes not only the most patronized facilities but also more commonplace facilities, that nevertheless are seen by the tourists as an important part of the experience. The best example is the much hyped columned pitched roof in Kandy that has been re-used in an increasingly segmented 'niche' market. The heritage is a ubiquitous resource associated with a particular historical era and a circumstance in both cases. Their ubiquitous resource endows everywhere with the possibility of producing heritage products on a tourism market. As the opportunity for entry increases so the chance of success of any one place narrows. The demand for heritage goods and services is shared between tourists and a wide variety of others in Kandy. In particular this shared-demand has an important task of socialization, identification and political legitimating as noted by Graham, et.al. (2000). Tourism, making use of resources which were not originally produced for the market and which are currently owned and managed by those who are unaware of that particular use, eventually marginalize the weaker. Kandy attests to this marginalization and a form of disinheritance as a result. For example, the art forms that were meant for paying homage have been assigned higher values unaffordable to the locals. Yet, Kandy with its cultural significance is able to withstand these currents created by tourism.

Heritage-Tourism and Place-Identity

It is a fact that the growth of heritage-tourism took off with globalization. Evans (2000) finds that there has been a noticeable growth in heritage visits, cultural performances and the sale of cultural goods in the last 30 years. Kandy

is experiencing an unprecedented growth of tourism after the conclusion of ethnic war in 2009. Among the reasons for this growth of interest in heritage is the consumption of culture as part of the lifestyle of a distinctive stratum in society, a reaction to the standardization of globalization. Heritage is seen by such segments as the pursuit of a social taste formed by the elite minority, equipped with the skills and experience as cosmopolitans (Urray, 1994). The place managers found the place-identity strengthened by heritages as an attraction to lure this particular social class. Ashworth and Turnbridge (1990) map out the profile of an average heritage tourist as aged 40-60, having above average income and education, are child free and relatively experienced in such holidays. These generalizations do apply in Kandy but with different capacities as there has been an inconsistency between supply and demand of heritage resources. The richer tourists visit Kandy during the pageant, spending a night or two while visiting other cultural sites around the historic city. They wish to identify with the city as the center of one cultural era and like to experience its surroundings in relation to that image. Those concerned with the preservation of heritage have widened the role of their responsibilities, successively seeking out new markets, using new techniques of promotion and presentation. Urban tourism is not confined to high art of the established classics but shows interest in a widening range of products, including the everyday heritage of ordinary people, for example, the food and culture of the ordinary. This trend can be defined as heritage tourism that strengthens both tourism and heritage.

However, the tourist use of heritage is highly selective and significantly different from other users in Kandy. It has been found that they make an intensive use of only an extremely limited number of buildings and sites. It is noted that larger, exceptional and spectacular monuments and dramatic events are preferred by most tourists who are aware of the heritage value of the place. They also visit smaller, domestic and more commonplace monuments. It is rather important to notice that most of the local tourists do not visit the historic sites in Kandy but only the temple. The place managers are challenged to enlarge heritage awareness by presenting the city with its region and people, thus dispersing crowds and designing sustainable development in the region (Figure 9). It is also noted that such an attempt would bring more long-lasting public-private partnerships to improve the socio-economic conditions and livable spaces in Kandy. The responsibility of managing the entire place has an impact on those popular sites. Also, tourists are rather unpredictable and as such they may appreciate other segments or precincts too. The selectivity of tourism can be explained by knowledge, expectation and time-space constraints of the

Figure-9: Renovation of Wooden building is an essential feature

tourist. This is why place management shall be intertwined with enhancement of awareness among tourists. In the city quarters where there is no such monumental architecture, the so-called everyday architecture is sacrificed. The place managers find the lack of monumental architecture as a drawback and try to crown few selected buildings, temples, churches, schools, etc. They have failed to understand the dominating feature, the everyday architecture as the major attraction of the fort city.

As far as heritage-tourism is concerned there is a need to find answers to the question, whose history and whose heritage is being consumed? The place manager's concern has been to help the tourist recognize the heritage as relevant.. The different consumption between foreign tourist and the locals has been a dilemma as the foreigners have different or limited knowledge of the place, but a better purchasing power. This lack of knowledge on the other hand allows the foreign tourist to be more open minded. It has been found that not many tourists are keen to respect the local values but make attempts to ascribe a different value on artefacts. It is thus important for place managers to include the practice of the particular value system along with the presented heritage to diffuse possible conflicts over selection, use and interpretation of heritage, especially because these items have religious and cultural values. On the other hand, such an integration supported by decentralized local activities

that have evolved with the particular heritage-city will enhance more tourism as the tourist makes a visit for the exotic nature of the heritage-city. However, the domination of universal inscription and international funding for protection of heritage has resulted in conservation and presentation of this heritage city in a manner with which the tourist is familiar.

The place managers have failed to grasp the swift consumption of the heritage city and Kandy's particular capacity to continuously supply heritage events for the tourism market. Despite the growth in interest for heritage and the widening variety of heritage products, any specific heritage-city is consumed within hours or a day, though the time taken to present it would have been much longer. The average length of stay of a visitor in Kandy is day long but the diversity of the city encourages the tourists to return to experience a new aspect of the heritage city. It is a fact that no heritage-city can be totally dependent on tourism as the sole economic platform. The place managers should design projects, large or small, that are able to absorb tourism with its fragility.

Discussion: Heritage, Tourism and Managing City

The impact of tourism on the economics of cities is well-investigated but the economics of heritage is largely under-researched (Graham et.al, 2000). In Kandy, the generalised versions of so-called success stories of other cities are grafted without assessing their suitability to the context. The strength of Kandy as a religious city is not paid due attention in bringing tourist development. Among the most significant factors that determine economic benefits are overnight stays and the economic links between heritage facilities and secondary services. Kandy primarily is a day excursion site and does not earn such a significant income through overnight stays. It has not explored the potentials of presenting itself as a congress or commercial venue. Its economic costs and benefits tend to be both spatially and functionally limited in its impacts. Besides the direct role as a commercial activity in itself, heritage tourism can play a number of less direct but equally important roles in their local economies. Tourism is one use of heritage but it can enhance its secondary economic significance by enhancing performances, museums or monuments that already exist for other purposes and for locals. The new facilities created for tourists could be used by the locals enjoying the improved livability of the heritage-city. The possibility of enhanced values of heritage products, properties, etc. as a result of tourism as well as the strengthened production process of some place-specific products is an economic benefit too. A proper heritage

Figure-10: City accessible to everybody

interpretation could enhance property values in Kandy. Although, the economic impact of this exchange of ownerships is yet to be quantitatively assessed, this will result in grafting a more comprehensive stewardship for the historic dwellings in those properties.

Tourism uses heritage with four main consequences for management. First, although such heritages as resources are rarely in the absolute fix supply, these resources can be depleted or damaged. Space for example is obviously finite, and it may be damaged indirectly through visual intrusion, presence of the wide variety of secondary accommodation or transport support facilities required by tourists (Ashworth, 1995). In Kandy, it is noted that subtle damages detract user experience and space transformation disturbs other spaces. Secondly, heritage resources and products have the characteristics of public goods, managed and financed by the public sector for the common good as they are usually freely accessible. Tourism uses such resources competing with their other uses/ users. The management of such universally accessible multi-sold, zero-priced, public goods presents fundamental difficulties for policy makers, particularly in the case of heritage-city of the developing world (Figure 10). Thirdly, the location of the heritage

Figure-11: City to continue as a living and working place.

resources being largely outside the system of tourism accounting creates externalities, thus demanding a supplementing of the flows of costs and benefits between producers and consumers, especially the opportunity costs of alternative forgone developments. Equally external benefits accrue through indirect taxation, supplemented amenity facilities, improved place promotional images and many more. This raises the question of sector, spatial and temporal equity, namely whether a tourist or other users are the free-riders in the system, whether the external costs and benefits are accruing to the same individuals, agencies and places and whether the timing of the incidence of receiving costs and benefits is the same. Fourthly, and resulting largely from the above, are organizational difficulties. In simple terms, the historic city has been protected and is currently managed by several agencies and local authorities. Their own goals, organizational structures, management instruments and working practices and struggles to implicate others in decision making have resulted in the failure of developing a comprehensive protection for the heritage and exploring the potentials of tourism in strengthening the economies of the heritage-city.

The development of a diversified tourism product line could benefit the economic wellbeing of the heritage-city (Figure 11). The idea that there exists a universal harmonious symbiosis between these parties is assumed rather than explained. The relationships between heritage, tourism and place, pose more questions and create more complexities. Why, and how, do tourists make use of heritage? What are the implications for heritage of its additional tourism use? What roles does heritage play in places and particularly what are the impacts on places of use of local heritage by tourists? The effective management of heritage tourism for local development goals depends on sustainable answers to these questions.

The religious significance of Kandy dominates the management of its place-identity. The place managers have made attempts to replace the commercial layers of the colonial and post-independent periods with more cultural activities after realizing the tourism demands of the entire city, but at the same time improving its place-identity. The current land use pattern and built forms attest to a cultural discontinuity and obstruct smooth functioning of the heritage-city, but replacing them with historicity-oriented images may damage the authentic evolution of the cityscape if it is not attended to carefully. As it is a fact that by removing the patina of a sculpture, one may not recover the original surface but rather damage the present state of the original surface (Munasinghe, 1988).

CONCLUSION

Heritage interests of foreign tourists and local tourists are different in Kandy. Thus assessing the diversity of tourist consumption in conserving and presenting heritage to balance the requirements of lucrative foreign tourism and the locals is the starting point of understanding what to conserve and how to interpret. The cultural significance of Kandy shows such diversity very clearly. Heritage tourism needs the varied resource values of the heritage-city as it is a useful marginal economic activity yet may become the main support for local economies. In Kandy, tourism has the potential to become a leading economic sector once listed as an economic imperative with an array of alternative options, a surplus capacity especially of land, labour and supporting services, a set of resources capable of being commoditized into products relevant to specific markets, a fortunate location relative to that market and also probably in the timing of the initiative. Such a checklist of preconditions for an excess of economic benefits over costs explains why failure in local tourism development is more likely than success.

If urban-tourism is to be managed in the heritage-city to the satisfaction of all those involved, we need a thorough understanding of the relationships, establishment of goals and priorities, and an array of instruments of intervention such as land-use and development control, or local economic and fiscal management, and the organizational structure capable of performing such tasks. One may argue that Kandy does not have any of them, but an optimistic vision is that they could be created in the heritage city which has loads of potentials.

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QUANTITATIVE AND QUALITATIVE RESEARCH IN HOUSING AREAS: CONTEMPORARY HOUSING DEVELOPMENTS IN SILESIAN METROPOLITAN AREA, POLAND

*Osameh Kassawneh**

ABSTRACT

Between 2000 and 2010 housing development in Poland changed dramatically. Increasing demand for houses and flats caused growth in the construction sector which resulted in many new housing realizations. Years of real socialism and central planning distorted the concept of a housing estate and that is why demand for single-family houses increased relatively more than housing demand in general. According to that demand local development plans eased large rural areas on the outskirts of most cities for single-family housing. As a result, there are many new low-density housing estates and very few high-density estates within city centres. The paper refers to a research method that has been developed to measure and compare various housing developments in Poland. The method can be used to show both density indicators and a general overview of different cases. The research presented in the article, based upon the developed method, was conducted in the Silesian Metropolitan Area.

Keywords: Housing density, Sustainable neighbourhood, Silesian Metropolitan Area

INTRODUCTION

Housing development must be conducted with respect to sustainable urban design, since areas dedicated for housing are the largest parts of cities (O'Leary 2003: 151; Levy, 2006: 188). Contemporary urban planning in Poland faces several different problems with housing developments such as; suburbanization, sustainability issues, low design and realisation quality. They are all connected with various factors like local and construction law, local traditions, real estate market, wealth level and others. In fact many of the existing publications regarding qualitative and quantitative research on housing are being conducted in the field of economy. As Horseword (2011) states there is a fundamental difference between both approaches: in quantitative approach numerical values need to be collected to enable statistical analysis while in qualitative data collection the analysis requires the information to be collected in non-numeric form. However, that does not necessarily occur in the field of urban design, where quantitative issues may represent qualitative values.

Most of the contemporary publications on housing estates show great interest in density, as it is one of the most important issues for urban planning. One of the more interesting exercises focused on density issues are "Farmax" by MVRDV, "Density" series by A+T edition and "Spacemate" by Permeta Architecten. "Farmax" (Koek, 2006) is an overall presentation of urban densities from all over the world showing how far the FAR (Floor Area Ratio) may be pushed and what the limits are. "Density" series (Mozas and Fernandez, 2006) show a selection of various examples of European housing estates presented in a catalogue in a graphic manner that allows to make a comparative analysis. "Spacemate" is an online calculator (Meta, 2004), a tool for density comparisons, which can be used in the quantitative approach. The calculator allows to illustrate different combinations of estates' parameters, such as density, FAR and site area. A lot of presented examples showed that similar parameters could be achieved through different patterns and various housing typologies, which can and should be used in urban planning. These publications seem to be very helpful in quantitative urban analyses and architectural researches, however they do not show the wider urban perspective.

In Poland, after the transformation in 1989 and even more after year 2000, due to economic growth, housing development, and with it land demand increased significantly. Before 2000 less than 0.8% of the total number of flats were newly built and later (2004-2008) it became more than 1.2%, while 20% of the total residential growth was in the Silesian Metropolitan Area. This led to many controversial decisions, which released large areas of land for housing. New estates were often constructed without the necessary services and appropriate roads. Since there are no housing standards in Poland (the last valid set of standards was withdrawn in

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1981), a vast part of new housing estates were of low quality and were located on the cheapest land - on the city outskirts, with no connection to the existing social nor technical infrastructure. That fits the broader image presented in the EU housing report (The Hague: Ministry of Interior and Kingdom Relations, 2010) which stated that the growth of built-up areas has been expanding much faster than the population growth.

In 2003 a new planning law in Poland was adopted. Then on obligatory development frameworks and local development plans were to be prepared. Unfortunately new developments, even when built after 2003, are of diversified quality. Many of them were designed before proper LDPs were prepared, or according to LDPs which were created with very few restrictions, based on a false conviction that free market can regulate the quality itself. A lot of new housing developments represent the quantitative approach, as they were built with the low quality with maximum density approach.

Urban indicators, such as housing density, number of floors, car park ratio should be set in LDPs and thus they would limit the urban form. However, as far as LDPs are not precise masterplans (showing precise layout with all urban indicators specified in detail) it is still common that housing estates are being built with minimum standards. According to the obligatory Planning System in Poland, quality issues in urban design may not be major drivers determining the final site layout. Housing Quality Indicators (HQI) focus on housing usability and performance (Imbrie, 2006). It is a measurement and assessment tool for housing schemes. Although the HQI is not being used, some of the obligatory regulations (building standards in Poland) meet the HQIs criteria. Nevertheless, the major HQIs criterion is location, which plays a major role for high quality housing.

For housing estates sustainability does not only mean energy efficiency but also balanced (sustainable) local communities. For ages, till the 19th century, people lived where they worked and shared the public realm (Talen, 2008). Nowadays, when places of work and living are often separated, a good transport system is crucial, and no housing development should be constructed without it. Sustainability also stands for social diversity and good neighbourhood can only be achieved with a mix of people of different ages, wealth and needs (Drury, 2008: 59-70). However, this target is hard to achieve if proper policies are not implemented (Broomfield and Drury, 2009). The most developed social policies can be observed in the UK (affordable housing system) and in France (HLM: "Habitation à Loyer Modéré", meaning "housing at moderated rents"). In some cases new developments are allowed on the condition that a part of each scheme is dedicated for the affordable housing scheme. There is also great care for diversification of flat sizes and tenure mix.

Since the housing sustainable development theory is quite well described in the European and Northern American context, and there are quite a lot of ideas on how to implement the concept of sustainable development (e.g.: Compact City, Traditional Neighbourhood Development, Transit – Oriented Development, New Urbanism, Smart Growth, La Nouvellle Charte d'Athens, Urban Village, Urban Renaissance, etc.) there was a need to check why the new Polish housing development is considered to be of low quality, whether is it a matter of subjective evaluation due to lack of actual research, or is it a matter of fact.

RESEARCH

The Silesian Metropolitan Area has been chosen for the research. It covers an area of 1218 sq km with over 2 million inhabitants. It is an industrial site, which generates more GDP than any other industrial region in Poland. It has a unique location as two most important European corridors A1 and A4 cross here. The region is still in transition from the Industrial Era to Post-industrial and Entrepreneurial Era. Silesia is one of the densest areas as the population reaches 1640 persons per hectare, which is one of the highest values in Poland and relatively high compared to Europe (the average is 166 persons per ha). Compared with several most important industrial areas in Europe, e.g. Ruhr and Randstadt, since the year 2000 many new developments have taken place and many of them are new housing estates. 41 different localisations were chosen for case studies, among them single and multifamily housing estates from 14 different cities from all over the Silesian Metropolitan Area (SMA) were chosen. The location of SMA, its structure and housing areas are presented here (Figures 1-3). The selection criteria was as follows: built after 2000, relatively dense site use (depending on typology, not to be understood as only a high density case), extraordinary values (to show that some cases may pretend to be ordinary buildings, but still some of the aspects or values may not be standard ones).

Research methodology was developed to present both sustainability and density issues of housing. The following research methods were used: general research about recent developments, observation, research on site and measurement (satellite aerial photos were used) and maps from local GIS systems. Polish cities share some of the data, such as plot

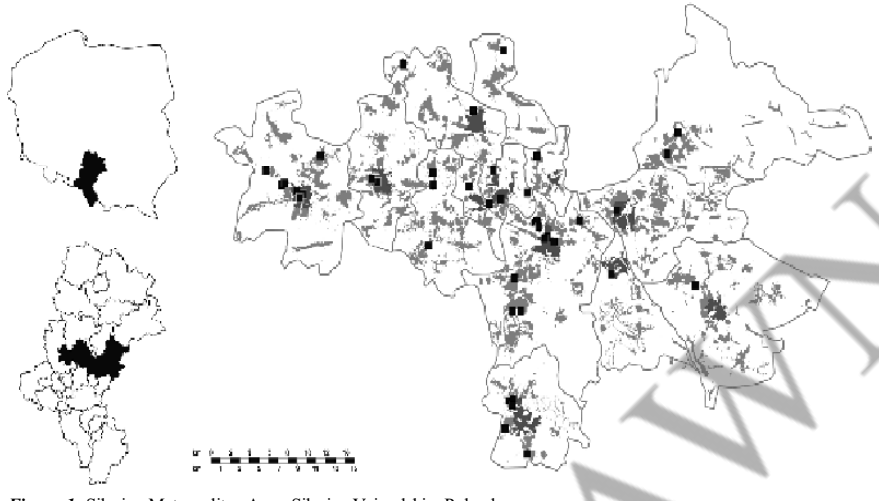


Figure-1: Silesian Metropolitan Area, Silesian Voivodship, Poland

	Total Area in km2	No. of Inhabitants (thousands)	Density (No. of Inhabitants Per Ha)	Number of Inhabitants Per Unit	Number of Units	Number of Units Per Ha	Total Number of Units	Number of Rooms	Average No. of Rooms Per Unit	Average Unit Floor Area	Average Area Per Unit Per Person
SMA (GZM)	1218	1990	**1634**	2,57	775626	63,7	43692521	2533541	3,27	56,32	21,96
Cracov (KOM)	3630	1340	369	2,8	478141	13,17	32407320	1693705	3,54	67,78	24,18
Warsaw(WOM)	6205	2941	474	2,45	1200666	19,35	7695562	4055411	3,38	64,1	26,1
Breclav (WrOM)	6725	1061	158	2,56	413182	6,17	27771244	1496007	3,6	66,89	26,17
Lódz (ŁOM)	2799	1129	403	2,37	475719	17	27312222	1526077	3,21	57,41	24,19

Figure-2: Silesian Metropolitan Area (SMA; GZM - Polish abbreviation) and other metropolitan areas in Poland - a comparison: data from 2006

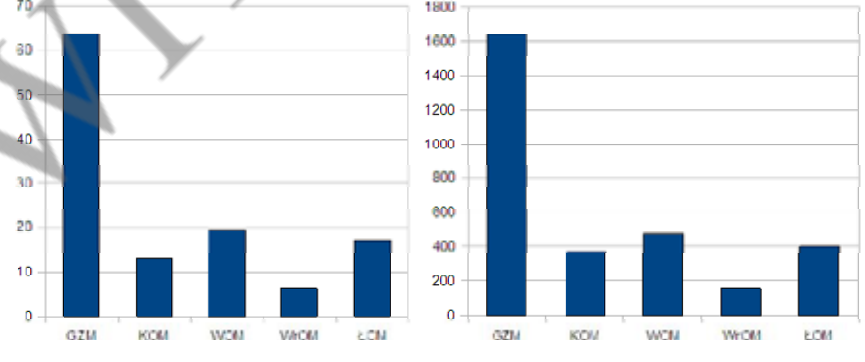


Figure-3: Housing density in metropolitan areas in Poland (SMA= GZM and other); left: number of units per ha, right: number of inhabitants per km^2

layouts, via web systems). Most of the collected data was set in a standardized layout with various parameters.

All case studies were assigned to one of three types of locations inner city and city centre, the adjacent city area and the outer city/ suburbs. The classification was similar to Gehl and Gemzoe, 1996. Three types of occupancy (private, housing association realisations[1] and social housing) were shortlised. For each case, images are presented to show how the place looks like (especially in order to allow visualisation of specific parameters with specific examples), and also general plans, to show how the site and the area are connected with the neighbourhood and how they are being used (Figures 4, 5).

Figure-4: Site and neighbourhood diagrams
Source: Photos by Agata Twardoch

Site area [m²/ha]	18 300/1,8	100%	Number of commercial uses around the neighbourhood	0
Built-up area [m²/ha]	3 760/0,37	20,5%	Number of commercial use per ha	0
Green area	7 700/0,7	42%	Number of commercial use per flat	0
Circulation area	3 890/0,39	21,3%	Distance to the next bus stop [m]	500
Other use area	2 800/0,28	15,3%	Distance to the next commercial use [m]	300
No. of floors	4		Distance to the next social use [m]	600
Site use	0,2		Number of trees at site	0
Density ratio	0,82		Environmental systems	-
No. of flats	156		Safety issues of landscape	-
Density [units per hectare]	86		Mix of flats' size	+
Parking spaces (ground-level/under croft)	117/0		Mix of tenures	-
Parking spaces (common/private)	117/0		Playgrounds for children	-
No. of parking spaces per flat	0,75		Accessibility for the disabled	-

Figure-5: Standardized layout for housing case studies

1 Affordable sector, the system is similar to HLM.

Some of the parameters used in Figure 5 have been described in detailed here: site area, built-up area, car parking area, green area and other. These values presented in percentage terms illustrate how the site is used.

- Site area is measured as plot area
- Built-up area is measured as area covered by buildings
- Green area covered by greenery: trees, lawns, bushes etc.
- Circulation area – area reserved for vehicle circulation mainly roads, car parks
- Other use area are the paths, squares, pedestrian areas
- Site use is the part of the site that is used by buildings (built-up area divided by site area)

Density ratio shows the use of space on the plot (built-up area x the number of floors/ site area). Density shows the number of flats per hectare - this indicator shows the value, which determines whether it is low (0-40 f/ha), medium (40-90 f/ha) or high (90 and more f/ha) (Mozas and Fernandes, 2006). Density varies from one location to another, depending on local climate conditions and building regulations. Other indicators, such as the number of parking spaces per flat, show how the development responds to the location's needs. Also, the distance to a bus stop as well as the distance to commercial services such as shops, or social services such as school and healthcare centres play a major role for vehicle circulation and use of public transport. Mix of flat floor areas and mix of tenures are indicators showing whether social balance can be achieved. Playgrounds for children or accessibility for the disabled are general indicators which show whether the landscape design on the plot was realized or not (according to the building law in Poland both features should be included).

All the values and indicators have been arranged to describe the built-up area as well as its neighbourhood. Some indicators that were used, such as proximity to commercial services (e.g. shops) or a bus stop, show the location's potential. According to the planning system in Poland local development frameworks may limit development with all possible urban factors, listed above. Nevertheless this research showed that in most cases the factors were either not used or not precise, which allowed various realizations.

RESEARCH RESULTS

According to the planning system in Poland each community is obliged to prepare a proper LDP (Local Development Plan). The most unexpected result was the fact that majority (65%) of the new built housing estates were planned on the basis of special planning permits (granted for the purpose of particular investments) and were not planned according to the binding Local Development Plan. This means that even though the new planning system was engaged in 2003, the new LDPs were not prepared to allow more precisely, planned site use and it lead to lowering the housing standards. The results showed some unexpected values in a few case studies and it turned out that such research was essential to present contemporary practice. Site use showed that in some cases there is less than 20% of the green area, and in most cases the parking space and circulation area takes up most of the site (Figure 6).

The number of trees was a surprising result in most of the case studies. Most of the trees had originally been growing there, while only few were planted. 11 cases (26%) showed that there were no trees on the site at all (Figure 7). Very few of the studied cases represented attractive greenery and site landscape layout (Figure 8). Also, very few cases had playgrounds, even though building law states that this is obligatory.

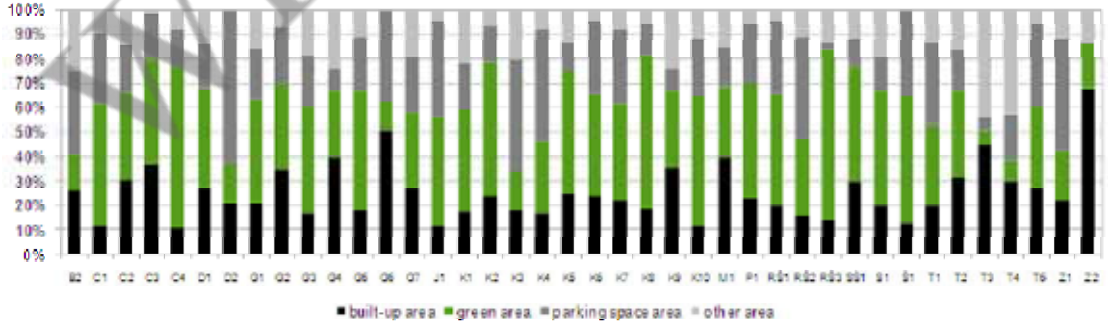


Figure-6: Site use graph

Figure-7: Bad example: low quality of landscape, no trees or plants (B2, Bytom, Sandomierska Street, Wesoa Street)

Figure-8: Good example: high quality of greenery in every suitable area (T2, Barona Bacha Street, Tychy)

Figure-9: Bad example: (G6, Gliwice, Wieczorka Street). A garage door on the ground floor in the city centre

Figure-10: Good example: undercroft car park and maximum density (Z2, Zabrze, Urbana Street)

The research on the number of car parks showed that even though the standard for developing countries would be more than one car park per flat, it is still common that this indicator is lower, especially in city centres. Observation showed that in most areas there was too little parking space (Figure 9). The issue of the parking spaces per flat ratio needs to be considered, many cases showed that a large part of the land is used for circulation and car parks. These facts stand in opposition to sustainable development. Only 34% of the studied cases had an undercroft car park (Figure 10).

The research on density showed that in some cases single-family housing may provide comparable density to multifamily housing (Figure 11). The research also showed that the number of floors does not always provide high density (Figure 12).

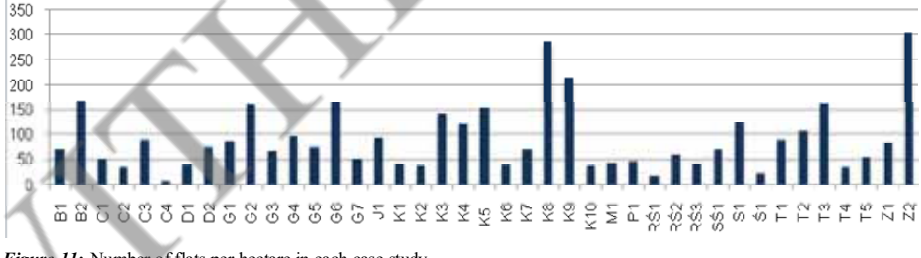


Figure-11: Number of flats per hectare in each case study

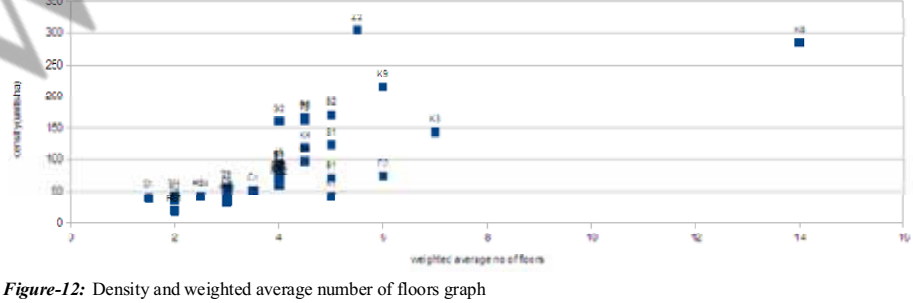


Figure-12: Density and weighted average number of floors graph

Figure-13: Good example - high density (av. 90 units per ha) and low number of floors (4) (G3 –Graniczna/Strzelnicza Street, Gliwice).

Figure-14: Good example - high density (av. 220 units per ha) and high number of floors (4-7) (K9: Katowice, S³awka Street)

The research also showed that environmental issues in the housing sector in Poland still remain relatively unimportant. In an evaluation of environmental systems, exterior solar shades (cool in summer, and warm in winter) were enough to get a positive mark, but still very few buildings had them. Other energy saving systems have not been observed (Figures 13,14).

In very few of the studied areas was there a mix of tenures. Most cases were commercial developments for sale (private) with one type of flat volumes. This often resulted in homogenous neighbourhoods with inhabitants of similar wealth, age and needs. The share of affordable housing in the housing market in Poland is very little compared to other countries (France 16%, UK 18%[2]) (Barker, 2006).

Only 29% of the studied cases had commercial services for rent. This does not meet the idea of mix of use, in some cases the distance to the closest shop was too long to walk and so sustainability was not achievable.

Some of the cases were gated estates some of them covered large areas fenced around with an entrance only from one or two sides. Often the contrast between inner and outer area was huge with high quality landscape inside and pavement holes with litter outside. This deepened social gaps and created unsafe areas in the cities. In case study for Debowe Tarasy estate, it took 10-minutes walk to encircle the entire site, and it did not help the inhabitants in the near neighbourhood since access to local shops was much more difficult than before.

CONCLUSIONS

Although many features of urban layout may be quantified or described by factors and ratios, observation of selected sites also provoked comments and provided conclusions. The research showed that in many fields new plans and realizations do not meet the European spatial development perspective. Housing quality assessment (partially the subject of the research) needed to be performed and it should be obligatory to improve the housing quality in Poland.

The more densely developed land is, the less need for transport. Several different studies, following various approaches, were carried out. Barret (Jenks et al, 1996) showed that the average distance that people travel depends on density. Accessibility to different means of transport and access to public transport may lower the total travelled distance. Providing access to parking space is one of the most important issues, since it has an impact on the site layout (Figure 15). The more green and pedestrian friendly the site is, the less parking space can be provided there. Urban factors for car park provision and density set in Local

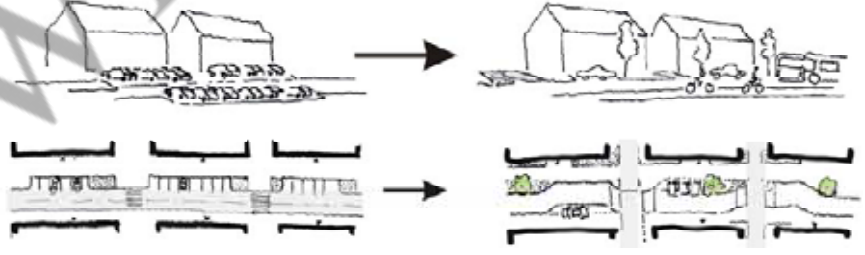
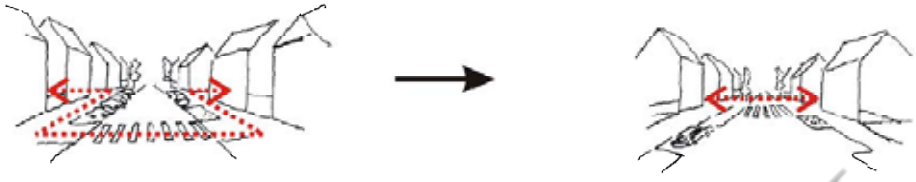


Figure-15: Site layout for different means of transport: left - urban landscape designated for car transport, right - urban landscape designated for various means of transport

2 3.9 million of flats belong to the social housing sector, 2 million (9%) belong to municipalities, 1.9 million of flats (9%) belong to *Registered Social Landlords*.



Figures-16: Better connections for pedestrians

Development Plans should include access to public transport and bicycles. In dense urban areas parking space ratios should be lower, if public transport is considered. Links also play a major role in how people use the space (Figure 16). Access to basic services should be provided both for pedestrians and vehicles, if the distance is too long, the most probable scenario is vehicle movement. Both connectivity and provision of positive public space for pedestrians can be done by urban design and space sharing (Figures 17, 18).

The role of good urban design and its contribution to place attractiveness has been widely described by Gehl and Gemzoe (1996). Very few of the studied cases may be considered as outstanding urban layouts, most of them were average and some of them were below obligatory standards (against the law). This showed that not only does the building law need to be changed, but also a special Housing Quality Assessment should be performed and a set of standards should be written down for future realisations.

Figure-17: Ypenburg, Holland. Examples of multifunctional site use (space sharing): 1 and 2 space for cars and pedestrians with access to flats, 3 flat surface - car park at night, playground during daytime,
Source: Photo by A. Twardoch.

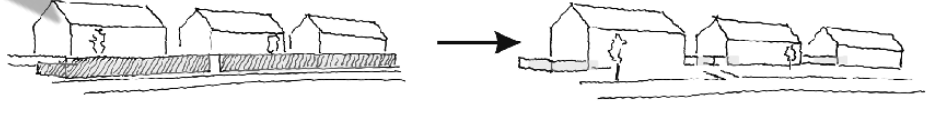


Figure-18: Left: gated estate with only one entrance, right: more open space and several entrances to the housing area

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AUTHENTICITY OF THE HOUSE FORM: WHAT CAN CONTEMPORARY HOUSING DESIGN LEARN FROM EVOLUTION OF PRE-INDEPENDENCE HOUSING TYPOLOGIES WITHIN THE CONTEXT OF KARACHI?·

Suneela Ahmed*

ABSTRACT

This paper documents and analyzes the evolution of three housing typologies within the context of Karachi: The Hindu Ghar (House in Urdu), the Colonial Bungalow and the Parsi Khanay (House in Persian), with respect to their response to the incorporation of indigenous social and environmental values and processes in the built form. Karachi, being a port city, has historically been the business center for the Hindu merchants and has been the colonial trading post in the 19th century. Both the Hindus and the Colonists have left an impact on the built form of the city, in terms of the evolution of certain housing typologies. The Parsis, a religious minority, absorbed different aspects of these impacts, and accommodated it in their house form.

The introverted Hindu Ghar is analyzed as an indigenous mixed-use development that evolved as a response to social, economic and climatic needs of the merchant class. The extroverted Colonial bungalow is investigated as a hybrid built form that was introduced as a foreign element but was adopted by locals and eventually became part of the native landscape.

The Parsi Khanay is reviewed as an example of the adoption of the Colonial style bungalow, which was modified to address social needs of an introverted minority community. The value and prominence of these pre-independence housing typologies is reviewed for the contemporary built form landscape of Karachi.

In studying the evolution of these typologies lessons are drawn with respect to urban morphology, sense of aesthetics, climatic response, use of technology, respect for traditionalism versus modernism, and incorporation of natural elements. The indicators that have been outlined for this analysis are as follows:

1. The relationship of the house with the urban morphology in terms of plot, building, streetscape, density, land use, open/ built ratios.
2. The response of these designs to local climate.
3. The usage of global versus local technology, materials, crafts and skills.
4. The incorporation and preservation of natural habitats, flora and fauna.
5. The amalgamation of local social values and sense of aesthetics versus global imagery.

A case study methodology has been undertaken for this research based on semi-structured urban interviews and morphological documentation. The key findings point towards many elements used in the design of these housing typologies, which were physically and socially responsive and help in drawing principles, which can be incorporated in the design and teaching process of contemporary houses within the context of Karachi, to create forms which connect to the local. The intention is that students and professional develop this understanding and are able to differentiate between origins and adaptations of local and global components of house design in order to make informed design choices in the context of Karachi.

Keywords: House, housing typology, bungalow, khanay, ghar, Karachi

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INTRODUCTION

Theorists of the global city are at times critical of the global imagery of the built form, especially in the developing world context, because it only caters to the aspirations of the upper middle-income and decisions marginalize the urban poor. Theories about global cities focus on iconic built form, with emphasis on the image of the city being portrayed through certain architectural projects, which are designed by renowned architects, and are often symbolized, by tall office buildings, museums and stadiums holding mega events and making use of high technology and imported materials. The formalistic expression of this type of built form may not always be derived from within the local environment, but imported from a global context, thus this built form may lack connection to local reality and aesthetics. Eventually with time this built form gets integrated in the local context, and what emerges is a hybrid built form, which takes cues from the global imagery but is a local version, influenced by local social, economic, climatic and technological realities.

Built form, which is foreign at one time, but is adopted and integrated within the context over the years through a process of adaptation by local communities, becomes the vernacular of a region, as eventually it is a familiar part of the local environment. Colonial built form is an example of this (King, 1990, 2004). The hybrid form produced within colonialism makes a connection between local materials and skills and imported aesthetics and technology. The formalistic expression of this type is seen in churches, cemeteries, clubs, racecourse grounds, golf course and beach promenades, and the production of bungalows in the South Asian context. The scale is not limited to the built form itself, but extends beyond, in the form of parks and beach promenades.

Some other aspects, which theories on global cities highlight, are the reflection of aspirations of a global image in a built form that houses a local function. Thus, the relation between the global space and the local place (Al Sayyad, 2001) is important to explain along with the particularization of the built form through a celebration of the difference between the global and the local.

Sassen (2012: 85-93) highlights that 'localized forms' within global cities is 'what globalization is about'. She further explains that many of the economic aspects of a city are not mobile and are embedded in place. Thus the importance to 'recover place and production in analyses of the global economy' help explain the 'multiplicity of economies and work cultures in which the global information economy is embedded'. Multiple localizations are seen within a global city, many of these 'localizations are embedded in the demographic transition evident in such cities'. The Colonial Bungalow is one such localisation and the development of its evolution helps understand the local and global process taking place within the city.

The focus of theories of vernacular built form is the historic fabric of the city, which is mostly mixed use and low rise in its character. The formalistic expression of these buildings and spaces rooted within the local environment, is the result of years of evolution and perfection, thus, it connects to the local sense of aesthetics. Other aspects of vernacular built form are the qualities of ecological and cultural diversity, reuse and recycling and participatory approach (Lawrence, 2006). Payne (2006) points out the use of knowledge about the vernacular for the design of appropriate and sustainable housing and settlements. According to him, the vernacular has many lessons to offer in terms of conceptions of space and systems of governance.

Theories about vernacular architecture points out the adaptation of the physical features of vernacular built form with a modern application. The emphasis in these theories is on adaptation to the physical and social features of the context, which in the view of the theorists point towards localness (Asquith and Vellinga, 2006; Oliver, 1997). Vernacular built form has also been termed the most authentic building form, by these theorists, as it stems from climatic and social requirements, addresses 'traditional patterns of space use, construction, design and symbolism' (Vellinga and Asquith, 2006:84), has been tried and tested over centuries and is often more sustainable than modern forms of building. The Hindu Ghar, reviewed here, is the vernacular built form, which reflects the social and economic realities of the old town.

Karachi, housing the main seaport of the country has attracted merchants and mercantile trading companies over centuries. The Hindu merchants settled in the city in early 18th century near the Kemari Port and traded goods across the sea with Muscat, leding to the development of port and the city as a trading center (Figures 1 and 2).

The British recognized the importance of the city as a trading post and annexed it to the British Indian Empire in 1843. The British developed the infrastructure of the city and built many structures housing civic facilities. They also developed and expanded the port realizing its full potential for that time. This led to the expansion of the markets and commercial activities in the city and attracted various different communities to the city- these included the Jew, Irani,

Figure-1: Location of Karachi on the Arabian Sea
Source: www.googleimages.com (accessed 12/4/13)

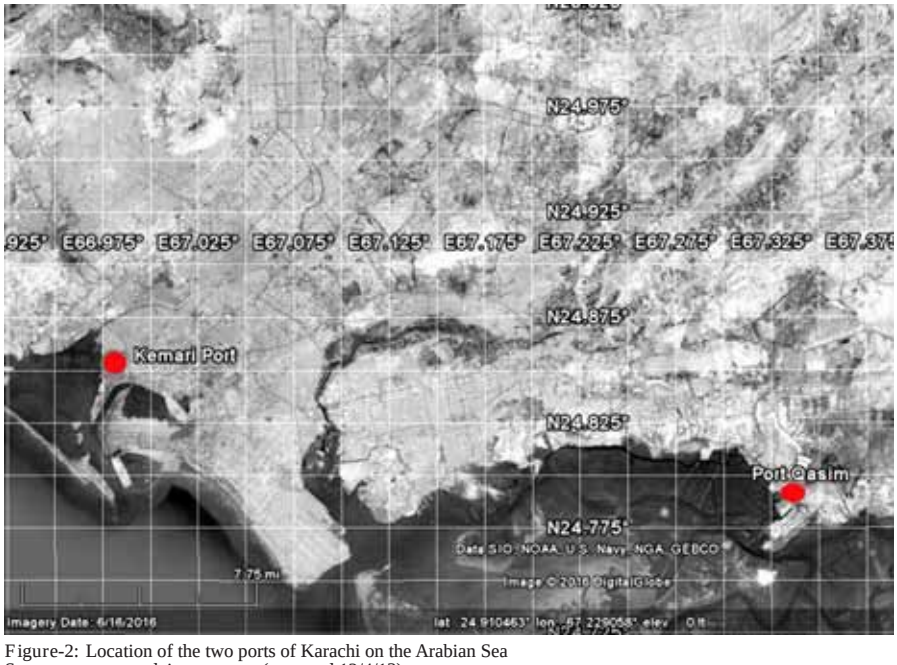

Figure-2: Location of the two ports of Karachi on the Arabian Sea
Source: www.googleimages.com (accessed 12/4/13)

Lebanese and Goan merchants. Each community built living quarters for themselves according to their social and economic requirements. Many were influenced by the housing typology that was introduced by the colonial rulers - the bungalow; which according to King (1995: 7) was a 'physical, but also an economic, social and cultural phenomenon'. It was a foreign building typology that influenced the social, cultural and economic structure of the society over a period.

The Parsi *Khanay* was a hybrid built form, constructed in the early 19th century taking cues from both the Hindu *ghar* and the Colonial bungalow, fullfilling the housing requirements of an introverted minority community.

The Hindu *ghar* (house) within the old city was an introverted house, oriented towards the central courtyard that grew vertically in an incremental fashion and was flanked by other houses on either side within a mixed-use development.

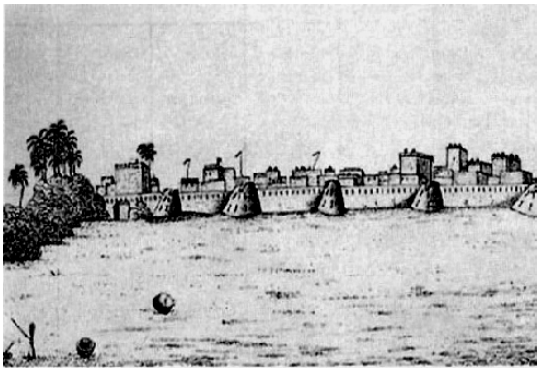

Figure-3: The old fort at Karachi, as seen in a sketch from 1830's showing the fortification wall and entrance gate
Source: www.googleimages.com (accessed 12/4/13)

CASE STUDIES

Case Study 01: The Hindu *Ghar*

The Hindu *ghar* was part of the dense fabric of the old city. Population density of Old Town has been recorded at 280 people per acre (Lari and Lari, 1996: 98) as compared to white town's density of one person per acre. The old city grew organically with narrow streets and small semi-public, semi-private spaces contained within mud brick architecture. Both Muslims and Hindus played prominent roles in the history of the city. Commercial and residential buildings and places of worship were intermixed and provided the residents convenient access to places of work and worship. The city was divided into *mohallahs* (neighborhoods), where *masjids* (mosques) and Hindu temples acted as the foci, while the Jumma *bazaar* (Friday market) held the central position of the city. The bazaar cut across from the *Khara Darvaza* (Sour water gate) in the west to the *Mitha Darwaza* (Sweet water gate) at the eastern fortification wall (Figure 3). Neither the walls nor the *darwazas* (gates) survive today, however the area of the city known as *Mitha Dar* and *Khara Dar* still exist which remind the inhabitants of the origins of the city.

The Hindu *ghar* was simple flat roofed, windowless structure employing construction system based on a frame of heavy wooden logs upon which short, interlaced wooden strips were placed to receive a thick layer of mud plaster (Lari and Lari, 1996: 184) (Figures 4, 5 and 6). Many wind catchers dominated the skyline of the Old Town. These acted as both wind sails and skylight. The flat roofs were used for sleeping and socializing during evening and night time. Many a times the ground floor housed shops owned by the Hindu merchants whose family occupied the apartments on the upper levels.

This introverted house prototype was also adapted for apartment buildings for native communities of the sub-continent, which were developed within the city at a later date. After 1857 the *Khafila Serai* (Caravan Quarters) became the centre for national and international trade in Karachi. After 1873 this area achieved a new image when major banks and trading companies constructed their offices here. A huge number of merchants bought land in the area and

Figure-4: Shops on ground floor and apartments on upper levels within the old city of Karachi

Figure-5: The introverted house in the old town of Karachi
Source: Archives at DAP NED UET

Figure-6: The dense urban fabric of the old city

developed housing. Many Hindu and Parsi merchants also started to develop their businesses in the Serai Quarters. They bought land from the government at nominal rates. The housing typology developed were mostly apartment buildings with apartments clustered around internal courtyards and each apartment under single ownership (Figure 7). The building height went up to ground plus two floors thus the courtyard received light throughout the day and became a pleasant socializing space. Each apartment had a covered area of 80 square feet with projecting balconies for maximum ventilation. The ground floor of the apartment building was used for commercial purposes and a mezzanine floor was provided for storage and offices.

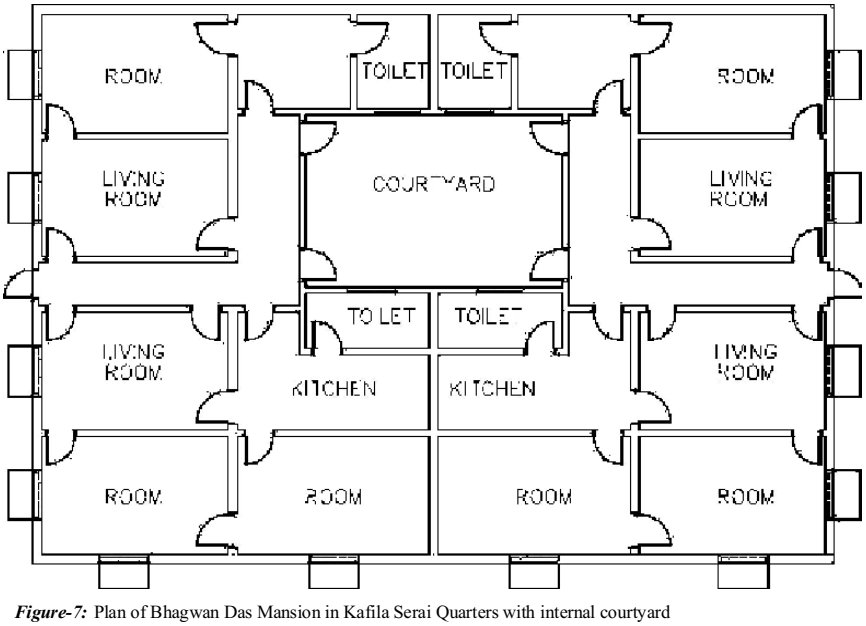

Figure-7: Plan of Bhagwan Das Mansion in Kafila Serai Quarters with internal courtyard

The construction was carried out in Gizri stone with use of teak wood for doors and windows. Although the walls were load bearing but the roof was laid in reinforced cement and concrete to allow for further floors to be laid in the future and also because wood was comparatively expensive. The facades were adorned with stone carving which was unique to this region because it was the local craftsman's interpretation of the classical order of proportion and geometry.

Case Study 02: The Colonial Bungalow

The colonial bungalow originated in the British cantonment. Cantonments tried to 'replicate conditions at home' (Lari and Lari, 1996: 65). 'Within a short time the immigrant culture manifested itself through symbols which were designed to impress and overawe the native population. The churches and town halls with their tall spires and clock towers unequivocally declared the supremacy of the alien culture' (Lari and Lari, 1996: 65). The colonial bungalow, 'both in name and form originated in India, a fact more easily recognized since the creation of Bangladesh. Yet though the name was given by India- from the Hindi or Mahratti Bangla, meaning 'of or relating to Bengal the dwelling it came to describe was primarily European' (King, 1995:14). Initially it was a 'product of cultures in contact, an indigenous mode of shelter adopted and adapted for Europeans living in India' (King, 1995:14). It was inspired by a simple Bengali peasant hut and transformed to meet the requirement of European governing class. The walls of this hut were constructed of mud and the roof was made out of thatch. With time it became a symbol of European power and influenced the life style, architecture and urban form of India. According to Desai and Desai (2011: 26) over time the bungalow became a symbol of 'commercial and the military might of India'. 'Thus, bungalows constitute a very special and unique typology in India, with a strong cultural/ historic position as representatives of a by-gone era. Historically they symbolize the individualization of private property, a concept new to the collective lifestyle of traditional societies in India. Over a period of time they were absorbed into Indian society, the imperial roots long forgotten' (Desai and Desai, 2011: 27).

The bungalow was a free standing, courtyard less outward facing, one or two storey structure, which was located away from the native city and mostly in the suburban areas (Figure 8). The adoption of western domestic kitchen equipment, furniture and sanitary fittings resulted in introduction of new typology of interior spaces; the drawing room, the dining room and the living room. The Indian upper class was westernized over time and started using cutlery, tableware, cooking utensils, water closet, bathtubs, dining table and sideboards. Social habits like drinks, afternoon tea, and cricket were also introduced in the Indian social life and concepts like interior decoration were presented for the first time. Thus through the introduction of the bungalow in the Indian landscape there was an impact on the living patterns and social behavior of the native people related to cooking, eating, hygiene, the serving of meals and relaxation (King, 1995:51).

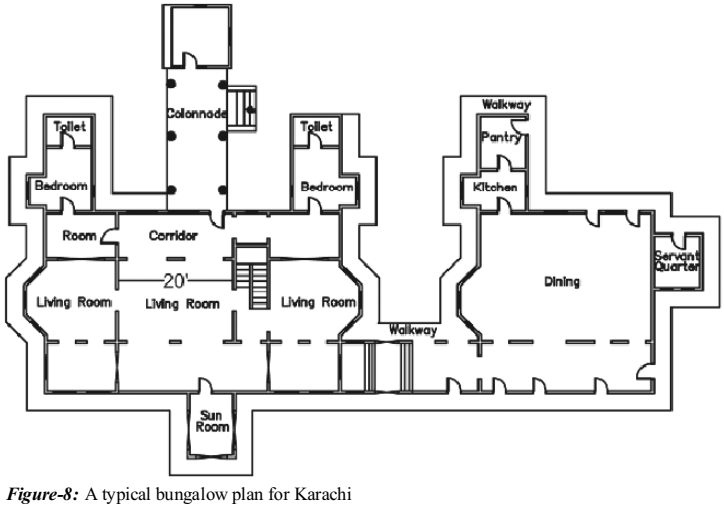

Figure-8: A typical bungalow plan for Karachi

The general planning principles employed for the bungalows in Karachi were similar as elsewhere in the British Empire with longitudinal plans, verandas on front and rear of the built form to keep the climate comfortable and to provide easy access, thick walls with internal voids for ventilation and exhaust, internal wooden staircases leading to the first floor, timber flooring throughout the building, wooden pitched roof to support a large span without houses to be used as stables. The general plot size was 4000 square yards, with 35% of area covered with the built form. The bungalows had extroverted planning with divisions between formal and informal spaces. The formal spaces covering the maximum built form area accommodated the private, semi-private, and public activities of sleeping, dining and entertaining. The informal areas housed the informal activities of cooking, ironing and domestic services. The strict differentiation between the spaces for the two types of activities was intended to keep the domestic staff away from the spaces occupied and used by the British owners of the houses.

The kitchen was thus placed away from the main house linked via corridors and having a back entrance for the cook and his helpers. Besides social segregation, the distance of the kitchen from the main house also enabled smell and other fumes to be exhausted in the exterior open spaces. Verandas surrounded the bungalows where the colonial owners had tea in the evening. The verandas also housed the staircases connecting the lower floors to the upper level. There were external staircases at the rear of the bungalows for access of the servants to the upper levels. All the toilets had rear entrances for cleaning purposes to ensure social segregation between the owners and servants.

The dominant features of the bungalows of Karachi were the Corinthian Order and tracery work carved in sand stone. Wooden battens were used to articulate the top of the arches and on the edges of the roof. The entrance portal was expressed as an added feature to the main form. It served as the parking space for the vehicle. Some other distinct features of the Bungalows of Karachi were the projected round balconies, louvered and French windows and French doors with glass panels (Figure 9).

Case Study 03: The Parsi *Khana*

After the Bombay Town Planning Act of 1915, the Karachi Municipality decided to prepare proposals for Town Planning Schemes for the planning of peripheral areas of Karachi (Lari and Lari, 1996). The development of Jamshed Quarters was a part of this scheme. It was the first planned residential area for the growing middle class. It was initiated by the

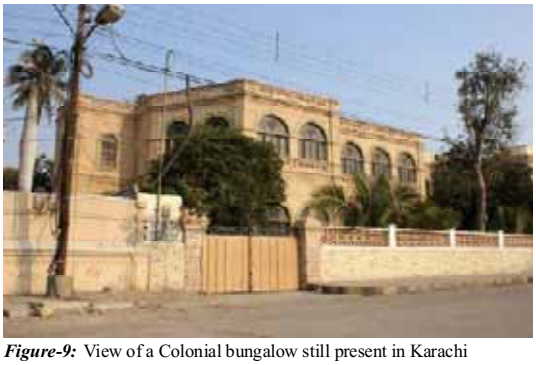

Figure-9: View of a Colonial bungalow still present in Karachi

Parsi Mayor of Karachi, Jamshed Nusserwanjee and is for obvious reasons named after him. Under this scheme, land was provided free of cost to Cooperative Housing Societies and the construction of houses was financed by Cooperative Banks.

The Parsi Colony was initiated in 1924. According to Lari and Lari (1996), it is one of the initial residential areas in Karachi developed near the White Town. The Parsis applied for land to be provided to set up a cooperative society. It was developed exclusively for the Parsi Community over an area of 96,000 square yards. The land for Parsi colony was bought on lease for 99 years and was controlled by Cantonment and maintained by Karachi Municipal Cooperation. The location of the Parsi colony was central to the city and even today it enjoys a strategic location.

The Colony's main aim was to provide housing on co-operative basis and to create an ethnically homogenized environment. Most of the occupants of the Colony belonged to the middle class Parsi community who lived and enjoyed the peaceful open surroundings of the locality. They hoped that their children and their grand children would enjoy the same peace and continue to live in the houses, which they had built but this never happened as the political divide of the country in 1947 altered their social and economic status, followed by migration to the west by vast majority of younger generation in search of greener pastures.

The initial plans of Parsi Colony were drawn on 58 plots, each measuring approximately 1000 square yard with wide roads and an amenity plot in the center for a garden and a library. The plots were allotted to those who became the members of the Society, but it was the society's policy not to recover the cost of land from the plot holders but only to recover the rent payable to the authorities. This accelerated the construction of houses (Ahmed et.al., 2015).

Figure-10a: Bungalow Parsi Colony Karachi
Source: Archives at DAP NED UET, Karachi

Figure-10b: Birdeye view of Parsi Colony Karachi
Source: Archives at DAP NED UET, Karachi

By 1926 first houses were built and classified in three categories. Those who built the houses entirely at their cost were categorized in Class "A", those who built the houses half at their cost and half by borrowing money from the society were categorized in Class "B"; and those who built their houses by borrowing the entire cost from the society were categorized in Class "C" (Figures 10a and 10b).

This low-rise bungalow style residential development for middle income Parsis with a strong emphasis on community living, stone structures and strong cultural heritage became a hallmarks of the community.

CURRENT STATUS OF THREE HOUSING TYPOLOGIES

Case Study 01: The Hindu *Ghar*

Change of land use, urban pollution and inappropriate renovation efforts have resulted in the loss of many architectural gems of the city. The Hindu *ghar* in the Old Town is being replaced by new buildings. These new buildings are generally ground plus six (Figure 11). The use of these buildings remains as retail on the ground floor and apartments and offices on upper floors, although many of the old structures today house storage facilities on the upper floors, instead of residential units. The aesthetic language of these buildings is different from that of the stone structures, because of their concrete construction. Glass facades adorn many of these buildings. The windows of these new structures are of aluminium, thus, there is discontinuity in the aesthetics set by stone structures with wooden windows and trellises. Residents are generally not pleased about the new construction, as they believe it has taken away the character of the area. Although the individual buildings are being replaced by newer construction, the area retains its character because of the organic urban morphology with narrow streets.

The urban scale of Old Town also remains pedestrian friendly with each quarter covering an area of 0.5 km (Figure 12). This still provides ease of communication, especially when the streets are congested with traffic. The meandering streets also provide a sense of security and privacy for the residents and the streets remain shaded most of the day (Figures 13a & 13b). The residents feel a sense of connection within

Figure-11: A new building recently constructed in the Old Town

Figure-12: The urban scale of the neighbourhood
Source: Base map provided by Heritage Cell, DAP-NEDUET

Figure-13a: Image showing the streets of Old Town

Figure-13b: Congested street of Old Town

their neighbourhood, as the streets become an extension of the apartments. Women and children can also be seen socializing from balconies of their apartments.

With the densification of the locality and ad-hoc development, the light and ventilation for many of these buildings has however been blocked and the residents complain of hardships they have to face when there is interruption in the electricity supply. With the densification of the locality over the years, the narrow streets have been deprived of sunlight and are dark during most parts of the day.

The locality, is defined by the markets present in the area by the stakeholders, rather than by jurisdictions or roads. Thus, the changes in the local government structures do not impact upon the association of the residents and shop owners with the locality. They continue to identify the different areas in the locality with the pre-existing structural setups.

Figure-14a, b, c, d: The recently constructed bungalows of Block 5 Clifton

Some of the communities that originally inhabited the area, like the Memon community, continue to live in the locality and have developed a strong sense of ownership, belonging and connection with the place.

Case Study 02: The Bungalow

Many of the bungalows built during the Colonial era still survive in the city today, but are in need of renovation and repair. They are recognized as an integral part of the history of the city and many of them are part of the listed heritage buildings. Many of these originally built bungalows are located in Clifton; high income area of the city which was originally developed by the colonialists as a suburban neighborhood on the Arabian Sea. The bungalow, however, still survives as a typology and is seen being built throughout the city in different sizes, although with the change in the material (from stone to concrete) the aesthetic language has changed. Block 5 Clifton is a high income residential neighbourhood in Clifton. The dominant built up typology here is also ground plus one bungalows, mostly on 500 to 1000 square yards plot sizes (Figures 14a to d). With the recent rise in the real estate value however, a trend of sub dividing the larger plots into smaller ones is observed.

In the Colonial tradition, many parks dot the locality making open built ratios as low as 50:50. The secondary roads are as wide as 25 feet as car ownership is high within the area (Figure 15). As the locality is dominated by large plots the residents are not seen socializing on the streets, because all

Figure-15: The recently constructed Parks of Block 5 Clifton

Figure-16a: The Band Stand

Figure-16b: Mohatta Palace

Figure-17a: The Dolmen Mall

Figure-17b: The Bahria Icon

these houses have lawns within their plots, and elders mostly socialize there in the evenings. Children play within their houses or in the nearby parks.

The monuments of the colonial period still stand within the locality (the bandstand, Lady Lloyd Pier and Mohatta Palace) (Figures 16a & b) but these have lost their importance and have been replaced in importance by the new building typology of the mall and mixed use residential and commercial towers (Figures 17a and b).

The urban form of Block 5 Clifton is based on regular plot divisions, in the same language as the Colonial Cantonment (Figure 18). The residential plots are mostly 500 to 1000 square yards. The secondary streets are as wide as 22-7", providing easy access to vehicular traffic. Access

Figure-18: Urban scale of Block 5, Clifton

Figure-19: A house being demolished in Katrak Parsi Colony, Karachi

by traffic is a primary requirement of the locality as car ownership is high. Amenities like schools, clinics and parks are integrated within the residential fabric and are not necessarily located on the periphery or the primary roads.

Case Study 03: The Parsi *Khanay*

Many houses in Parsi Colony are being demolished, because they are either too large to maintain or its inhabitants have migrated abroad and are not interested in returning to Karachi (Figure 19). Many apartment buildings are seen popping up on the plots on which once aesthetically pleasing bungalows existed. As a result the overall morphology of the locality is changing and the city is losing a building typology, the Parsi *khanay*, which narrates tales about a homogenous community dwelling within a hetrogenous city.

DISCUSSION AND ANALYSIS

Having described the three housing typologies and their current status, the following section analysis them with respect to their initial response to urban morphology, climate, technology and social setups. Conclusions drawn from this analysis are used to assess the validity of these typologies in the contemporary housing design and the strength of some of the principles adopted in these typologies of housing.

1. The relationship of the house with the urban morphology

The Hindu *ghar* was located in the old town of Karachi and was densely packed within the irregular meandering streets. The plot divisions were irregular, as the locality had grown organically over time with no attempt to any formal plan implementation. It had narrow streets enclosed within fortification. The only concept of communal open spaces were the public squares formed either by the culmination of roads or open space surrounding mosques and shrines

Figure-20: The urban morphology of the old town

Figure-21: Bungalows in Karachi in the early nineteenth century
Source: www.googleimages.com (accessed 23/12/13)

thus the built up density was high as compared to the colonial white town (Figure 20).

The white town besides having a grid morphology possessed several landmarks that enhanced its urban characteristic. 'Each quarter could boast its own focal point' (Lari and Lari, 1996: 166) (Figure 21). The urban vernacular belonging to the Colonial Era has examples of the bungalow type and walk up apartments - within a gated compound with communal open space on ground level for social activities of the residents. The bungalow typology introduced by the British, (which according to King (1995) was based on the concept of separating the local servants from the colonial masters of the house) was a ground plus one single-family home surrounded by landscape and enclosed by low height boundary walls. This typology was also used for 'inspection, forest, canal and irrigation' offices of the colonial rulers. This led to the development of the Public Works Department's (PWD) vernacular version where the 'central room, with its flat roof was higher than the veranda and to ensure ventilation and a cool breeze at ceiling level, windows were high up in the 15 or 20 feet high walls' (King, 1995:45). The urban morphology was thus based on regular plot divisions, wide streets to accommodate carriage and vehicles, low rise and low density development with adequate compulsory open space around the built forms to provide for adequate ventilation. Parks, gardens and beach promenades were also introduced by the British within the colonial white town as recreational areas for leisurely stroll of the white men and women.

The overall urban morphology of the Parsi Colony was similar to the British white town development, with bungalows on large plots having an orthogonal development and communal spaces for the community's social interaction (Figure 22). The Colony also had similar characteristics as the Old Town as it was developed as an introverted urban area with ring roads passing around it and no thorough fare. Thus, it secluded the Colony from the rest of the city and

Figure-22: Bungalows in Karachi in the early nineteenth century
Source: www.googleimages.com (accessed 23/12/13)

retained its peace and quiet. This was comparable to the Old Town being enclosed within a fortification wall having no through access.

2. The response of designs to local climate

In Karachi's Old Town the use of screens and louvers made in wood has been common, firstly because it cuts out the glare and lets the breeze in, and secondly it provides a sense of privacy in dense urban fabric of the old city, which is welcomed in the introverted way of life. Traditionally the courtyards within the houses also worked as efficient climatic solution for the densely packed houses of the Old Town and provided spaces for social interaction for the households. The high density and narrow streets also helped in keeping the glare and heat away from the streets as during most part of the day the streets were shaded by the built form.

The bungalow on the other hand was oriented to catch prevailing breeze with rooms side by side and doors and windows opposite to each other to let the breeze through. The plan of the bungalow was generally kept simple with the built form surrounded by verandas. The verandas took the stores, servant rest spaces and were used as walkout social space for evening tea (King, 1995: 45). Thermal controls like thatch roof with tiles, chicks (blinds made of bamboo and split) for keeping the glare out, wooden screens, tatties (screens made of sweet smelling grass fitted to doors and windows) which were splashed with water to have a cooling effect and fans made out of cloth and rotated by domestic staff were incorporated in the European bungalow. The walls of the bungalow were 10 feet thick, which also acted as insulation.

The big scale of the bungalow was a prerequisite as it was a ground plus one structure surrounded by landscape on all sides thus the sprawl was essential for cross ventilation. The 'compound was simply an extension of the bungalow's internal space, an outdoor room, fulfilling a variety of social, political, cultural and psychological needs' (King, 1995: 34). Thus the bungalow was 'centrifugal' with space flowing from the central living space towards the veranda and onto the landscape in the surrounding compound quite in contrast to the courtyard houses of the native city which were centered around an internal court (King, 1995:34). The fan was introduced in the veranda by the British, which is still used as a climatically responsive solution for the terraces of modern houses in Karachi.

The Parsi *Khanay* followed similar design principles as the colonial bungalow with the major difference being in the scale of these houses (Figure 23). These houses were on a smaller scale - half the size of the colonial bungalow and had formal spaces on the ground level and private spaces on upper levels. Some of the Parsi houses also had internal courtyards, thus they became an amalgamation of the introverted Hindu *ghar* and the extroverted Colonial bungalows.

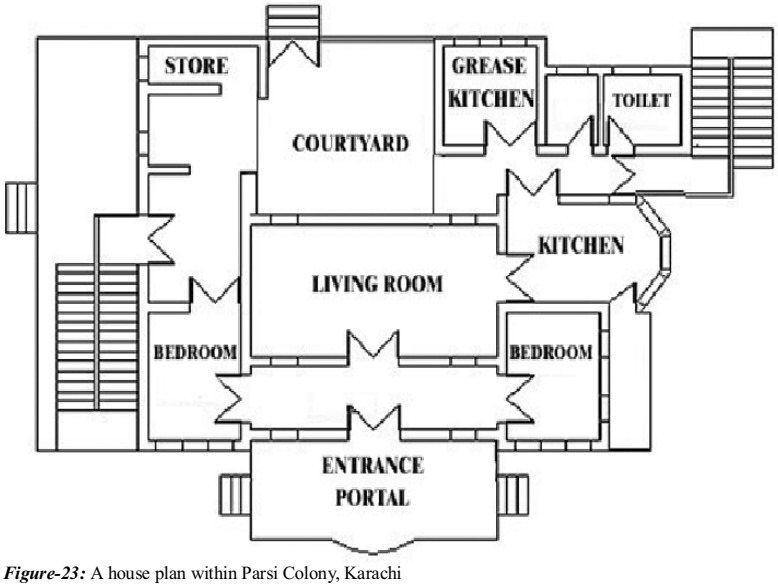

Figure-23: A house plan within Parsi Colony, Karachi

3. The usage of global versus local technology, materials, crafts and skills

The British introduced a new standard of brick size 9'x 4.5'x 3' (Cooper and Dawson, 1998) in the sub continent in the early 19th century. They also introduced steel girders, cement and corrugated iron in the region. Before these materials were introduced all construction in the Old Town was done in either brick or stone. Mud plaster mixed with cow dung or straw was used as insulation in rural areas. Terracotta tiles and burnt bricks were used in more affluent houses in the city. The roofing was made of thatch, straw or bamboos woven together. The Hindu method of construction was largely trebeate embellished with plastic molding of figures, humans and animals (Khan, 2003).

Glass was introduced in the sub-continent in the 1920s into the traditional buildings as a colored decorative item by the British (Cooper and Dawson, 1998: 40).

Stone was mostly used in the plinth and foundations of the domestic Colonial buildings - as it was readily available in Karachi and is steadier than brick and does not require reinforcement. Stone was mixed with rubble or lime mortar for further strength and to make the houses earthquake resistant. Local artisans were employed to execute Gothic designs on the facades of bungalows. Once this craft was learned it was applied indiscriminately on various other forms within the city. What this resulted in was the development of a new vocabulary, as Kamil Khan Mumtaz (1985: 147) puts it 'When the traditional Sindhi stone carver turned to European classical architecture, he fashioned forms that would have delighted even the most outlandish Italian mannerist.' In order to illustrate this statement Kamil Khan Mumtaz describes the apartment building in Karachi in the following words, 'Here, carved in the yellow sandstone of an apartment's facade at Karachi, are Michealangelesque giant-order columns in the central bay rising past diminutive pilasters to the height of the two lower storeys; rustic masonry and rustic columns and pilasters; renaissance balustrades; a mannerist roof-line of broken pediment, scrolls, vases and spheres' (Mumtaz, 1985: 147-148) (Figure 24).

4. The incorporation and preservation of natural habitats, flora and fauna.

The old city where the Hindu *ghar* was located had a high density (280 persons per acre) and lack of open green spaces. The British however, 'bought with them love for flora and fauna and adorned their empire with majestic buildings, weaving together elements of the Central Asian and Persian

Figure-24: Apartment building in Karachi
Source: Mumtaz (1985: 147)

cultures with indigenous Hindu craftsmanship' (Lari and Lari, 1996: 56). Initially few areas were designated as parks (Burns Garden and Zoological Garden) within Karachi but eventually the city experienced the construction of parks (a foreign typology before the British introduced it in the sub-continent) and walkways along the beach. The Bandstand and Lady Lloyd Pier in Karachi are examples of these (Figures 25a and b). The white town was also adorned with heavy tree plantation. Many of these trees still survive.

The Parsi Colony was developed in a similar tradition as set by the white town. The density was kept low and many trees were planted on the sidewalks and in the park. Today the old shady trees make the microclimate pleasant. They keep the temperature low, and work as sound barrier and filter pollution from the surrounding areas.

5. The amalgamation of local social values and sense of aesthetics versus transcultural imagery.

The Hindu *ghar* was a direct response of native social and aesthetic values but both the colonial bungalow and the Parsi *Khanay* produced form and vocabulary, which was an

Figure-25a: The Bandstand, Lady Lloyd Pier

Figure-25b: Frere Town Hall constructed by the British

amalgamation between local and global sense of social norms and aesthetics. The colonial bungalow for instance took form and architectural elements from the Bengali peasant hut and translated it into an integral element of the bungalow as it suited the social requirements of the English men and women who occupied the bungalow. The Bengali peasant hut was an extroverted building type surrounded by semi-covered gallery on the exterior, which was used as an extension of the living and working space. According to King the origins of the gallery around the built central core was inspired by the Bengali peasant hut in which they originally existed and were not a European addition. What is however, not clear in its origin is whether the same roof projected over the balcony as well or a separate roof covered the balcony (King, 1995: 24-30). King quotes from Kipling's account that 'the double roof bungalow with a clerestory was a later mid nineteenth century development of the earlier version where the roof covers both living rooms and verandas, as an extinguisher covers a candle, and which admits light through the doors only' (King, 1990: 28). The incorporation of the base of the veranda into the foundations of the built form of the bungalow was also a feature adopted from local Bengali peasant hut (King, 1990).

Having adopted from the Bengali Hut the bungalow introduced new design elements to cater for the social segregation between the Europeans and the natives and to address the living patterns of the white people. The absence of the sewerage system combined with the local caste system in India ensured location of sanitation on external walls with rear access for servants. The concept of attached bathrooms, carriage porch to shade the vehicle used by the officers and dining and drawing rooms was introduced in the bungalows. The servant quarters were also part of the bungalow compound but were located towards the rear end where they were not visible (King, 1990). These architectural elements were adopted in the Parsi *Khanay* as they were designed with attached toilets with rear access for servants, separate dining and drawing rooms and car porch.

Lessons for contemporary housing design in Karachi

The following design lessons can be drawn from the analysis above of which contemporary designers and students should become conscious and should be able to understand their origins:

1. Organic layouts of the urban morphology of the Old Town of Karachi were replaced by orthogonal grid plotting.

2. The introverted house form was replaced by the extroverted form of the bungalow.

3. The introverted open spaces (courtyards) were turned inside out to be replaced by the lawn/ garden.

4. Climatically responsive elements of the Old Town were incorporated in the bungalow design, which includes the wooden screens, jalis, ventilators and bamboo blinds. A new element in the form of a fan in the veranda of the bungalows was introduced which was adopted by later houses.

5. Flora and fauna was used extensively which offered privacy to the occupiers of the bungalows and also helped bring down temperatures.

6. The incremental development on small plots of the Old Town was replaced by capital-intensive development of the bungalows. The Parsi Colony however, offered a subsided process through which housing could be acquired by a community having common ethnic origins.

7. The use of the rooftops for outdoor activities was lost to low density development of the bungalows.

8. The change in life style and social patterns of the locals was reflected through introduction of dining room, drawing room and dining table, credenza and sofas as compared to eating and socializing while sitting on the floor. This change was accompanied by the introduction of the carriage porch/ garage to house the vehicle and attached toilets with rear access for servants.

9. The Parsi *Khanay* was one typology which consolidated the principles, learnt from the Hindu introverted house and the extroverted colonial bungalow and created a hybrid form, which was situated in a detached plot with a private lawn but also housed an introverted courtyard.

10. Monuments as focal points were integral part of the Colonial planning, which was adopted as a principle in the post-independence master plans of Karachi.

11. The technology introduced by the British - a new standard of brick size, glass, steel girders, cement, corrugated iron and lime plaster - are still used in the contemporary building construction in Karachi.

12. Parks as an urban open space were introduced by the British for the first time in Karachi. Today they form an integral part of housing design in the city with 5% of the land use allocated to open spaces in any housing development according to the Karachi Building and Town Planning Act (2004).

Contemporary housing design adopts many of the principles introduced by the three types of houses described here without consciously understanding the origin and significance of these ideologies. A conscious decision to adopt and innovate certain design principles in the contemporary housing design can add to the value and innovation to the design practice in the context of Karachi.

CONCLUSION

This paper documents and analysis the evolution of three housing typologies within the context of Karachi: The Hindu *Ghar*, the Colonial bungalow and the Parsi *Khanay*. The three types of houses are analyzed with respect to their response to the urban morphology, local climate, usage of technology, response to natural habitats, and the amalgamation of social values and sense of aesthetics.

The introverted Hindu *Ghar* was an intrinsic part of an indigenous mixed-use development that evolved as a response to social, economic and climatic needs of the Hindu merchant class. The extroverted Colonial bungalow was developed as a hybrid built form that introduced a foreign aesthetic language but connected well with the society's social setups and was adopted by locals and eventually became part of the native landscape. The Colonial bungalow was embedded in a new urban morphological vocabulary of the gridded town, which was also adopted and used by the urban developments of the future.

The Parsi *Khanay* adopted the colonial style bungalow, and modified it to address social needs of an introverted minority community. The conclusions drawn point towards the various principles adopted in the design of these typologies and the values that contemporary housing design can learn from if architects, professionals and students consciously engage in the design of houses having understood the origins of various principles.

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ANALYSIS OF "*KOOCHA* HAVELI NAU NIHAL SINGH", THE WALLED CITY, LAHORE

Daniyal Ahmed*

ABSTRACT

According to a demographical study (JICA, 2012; Jamal and Mazhar, 2009) conducted in 2012, Lahore is the largest city of Punjab (Pakistan) with a population of about 10 million. The study also suggests that the population of this striving metropolis has been growing at a growth rate of about 3% per annum. The growth of population as compared to designed residential spaces is unbalanced. Lahore is facing a shortage of housing authenticated by the statistical data of 1980 and 1998 (JICA, 2012: 2-59). With the increasing number of people, there is a rapidly decreasing designed residential landscape required for the socialization of such a large population due to the profit-making strategy employed by the real estate developers merely observing human clusters as money machines. Our urban settlements are gradually becoming dead, lifeless spaces with no attraction, zeal and activity areas for all age groups. Question remains that how should we design our urban settlements, especially residential clusters, catering to the growing population simultaneously having the same spatial qualities, urban benefits and aspiring planning techniques that are present in historically grown informal settlements.

This manuscript analyzes an urban cluster located in the historic city center of the Walled City Lahore and documents those qualities and uncountable benefits that are being offered by the "*koochas*" (piazzas or squares) of this historic informal settlement to its residents. The role of a "*koocha*" in this informal settlement has been analyzed particularly in order to emphasize their importance in providing a luxurious space for routine gatherings and cultural events. Informal settlements like these are the most appropriate socio-culturally built environments that were developed (and are still developing) gradually with the passage of time over a period of several hundred years without the services of professionals. On the basis of characteristics of discussed"*koochas*" different guidelines are developed in the form of conclusions so as to propose a basis for planning of futuristic urban settlements of Lahore.

***Keywords*:** Lahore, Rapid Population Growth, The Walled City of Lahore, Urban Informal Settlements, *koocha, Haveli* Nau Nihal Singh.

INTRODUCTION

With the increasing population of Lahore, the quality of designed residential landscape is declining day by day. Land use classification surveyed in 2001 suggests that residential usage (9.8%) is the second largest land consumption in Lahore after vacant agricultural land (JICA, 2012a: 4-7). Spatial growth of Lahore from past (Pre- Muslim Period up to 1002 AD) to present (Figure 1) is projected concentrically depicting population growth. After the partition of the sub-continent in 1947, Lahore city started circular development around the Walled City. In 1960s the high population growth rate lead to the city's expansion towards south and south-west along Ferozpur and Multan Road corridors. Expansion towards east was limited due to the Indian border and was affected after 1965 war with India. West ward expansion of Lahore has been restrained due to the pressure of Ravi River (JICA, 2012: 1-2). Urban sprawl[1] of Lahore has resulted in the energy, infrastructure and profitable land waste. As the archival trends recommend, Lahore till 2020 (Figure 2) will be stretching far across the south-west direction exhibiting a luxurious residential landscape. If the spatial quality of this is to be developed, residential scenery will not be controlled and it will be a considerable addition to the existing unplanned, ribbon organic growth that has taken place in the past fifty years.

Among the several approaches an architect may opt for while considering the futuristic residential landscape, this

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1 Urban Sprawl is considered as a form of urbanization distinguished by a leapfrog pattern of development, commercial strips, low density, separated land uses, automobile dominance and a minimum of public open spaces.

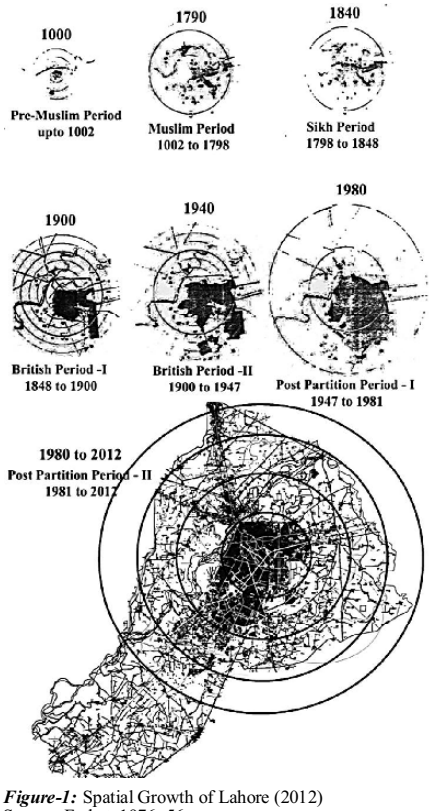

Figure-1: Spatial Growth of Lahore (2012)
Source: Farhat, 1976: 56

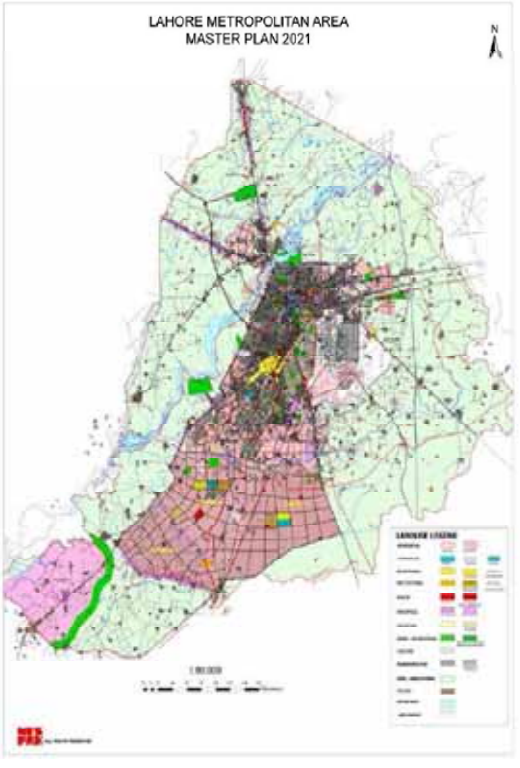

Figure-2: Master Plan of Lahore (2012)
Source: JICA, 2012: 2

paper analyses a historic cluster from the Walled City of Lahore as an alternative appraisal for residential problems that Lahore is facing today. Leaving many of the aspects of urban renewal or redevelopment essentials such as capitalist approach, gentrification, economics, public involvement, infrastructure, public health and many other aspects aside, this paper only focuses on the spatial planning that "*koochas*" are offering to their residents while touching just a number of cultural and humane aspects.

According to Lahore Urban Development and Traffic Study conducted by Lahore Development Authority in 1980, the population of Walled City of Lahore was about 500,000 (Mumtaz, 2002). It was also stated that Walled City was greatly overpopulated for its size and capacities back then. Another publication (Mumtaz et.al, 2002a: 87) states that the population of Walled City was 260,000 in 1983. Following this trend the situation has changed dramatically now. Due to rapid commercialization and development of luxurious housing schemes at the outskirts of Lahore, population and particularly residential population of the Walled City has declined rapidly over the past few years. Major factors in this deteriorating condition are the lack of communal facilities and public transportation. Narrow streets are not able to bear the pressure of bank leased cars that are increasing rapidly in Lahore. Basic infrastructure necessities are also not present. The purpose of this paper is to focus on the spatial qualities that are still in their full bloom in the Walled City of Lahore, but also idealize the past quantitative population analysis that boosted highly densified but not over-crowded areas as the *koocha.*

"*Koocha*" is an Urdu word having the same meaning as of a square, plaza or a piazza. In all the cases, it is both an area framed by buildings and an area designed to exhibit its buildings to the greatest advantage (Moughtin, 2003). Walled City of Lahore possesses a very fine tradition of "*koochas*", just to name a few near the Delhi Gate area are:

- *Koocha* Chaudhry Muhammad Siddique (Figure 3)
- *Koocha* Hussain Shah
- *Koocha* Namad-Garan

Although negligible work has been done in documenting the spatial qualities of *koochas* of historically significant informal settlements of Lahore, examples from other parts of geographically and culturally compatible regions including India (Bhatt and Rybczynski, 1984), Afghanistan (Aga Khan Development Network, 2007), Iran (Aga Khan Development Network, 1983), Uzbekistan (Aga Khan Development Network, 1996) and Egypt (Aga Khan Development Network, 2005) may be consulted. Furthermore different accounts (Aijazuddin, 1991; Latif, 2005: 3; Goulding and Thornton, 1924: 75-80) on the historical development of Lahore have been referred to but they also fail in presenting a thorough documentation of the spatial characteristics of historically significant informal *koochas*.

SELECTION CRITERIA OF A "*KOOCHA*"

Among a large variety of "*koochas*" existing in Lahore the ones from the Walled City and inner city areas offer an extensive insight regarding densification and mixed-use communities. *koocha Haveli* Nau Nihal Singh has been selected for a case study due to the proximity of this *koocha* with a historically significant heritage site of *Haveli* Nau Nihal Singh (declared as special premises by the Government of Punjab under the Punjab Special Premises (Preservation) Ordinance 1985) having layers of Mughal (dating back to five hundred years and more), Sikh (1790 – 1849) and British (The Raj 1850 - 1947) architectural styles. The analysis of *koocha Haveli* Nau Nihal Singh reveals numerous benefits as compared to the current planned piazzas in outskirts of Lahore. These benefits are listed in Table-1.

Koocha Haveli Nau Nihal Singh

Historically significant informal settlement of *Haveli* Nau Nihal Singh is located inside the Mori Gate area within the context of two most important monuments of Lahore – *Haveli* Nau Nihal Singh (constructed in 1837) and the Walled City - has been analyzed as a prototype to be replicated in new urban developments. *Koochas* acting as ceremonial urban spaces in these informal organizations not only provide the residents with a luxurious space for socialization and hundreds of routine activities, but also act as gathering spaces during religious, cultural and political events. There are two *koochas* located adjacent to *Haveli* Nau Nihal Singh (Figure 4). One *Koocha* is located at the west (Figure 5) and other *koocha* (Figure 6) is located on the east of the

Figure-3: Koocha Chaudhry Muhammad Siddique
Source: The Lahore Project, 2014

Haveli. The *koocha* on the west is of a larger size as compared to the other one. Both of these have the same socializing spatial qualities, urban benefits and aspiring planning techniques that are characteristic of the Walled City of Lahore's informal settlements. Some of these characteristics (Bhatt and Rybczynski, 1984) are listed in Table-2.

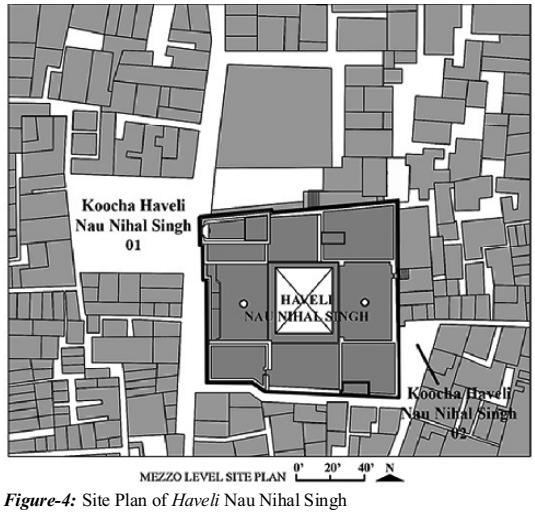

Figure-4: Site Plan of *Haveli* Nau Nihal Singh

Table-1: **An analysis of *Koocha* *Haveli* Nau Nihal Singh and *koochas* in Outskirts of Lahore, based on urban parameters**

Parameters	*Koocha Haveli* Nau Nihal Singh	*Koochas* in Out-skirts of Lahore
Density	Higher Density	Lower Density, dispersed activities
Walkability	10 minute (1320 ft, 1/4th of mile) distances between daily activities. Pedestrian friendly passages	Roads are designed for motorists and not for pedestrians. Different facilities are placed far away from each other
Land-Use	Mixed Land-Use. Better places to live, work, play and shop	Single-Use, segregated land uses
Scale	Human scale. Smaller buildings, blocks and roads/ pathways. More detail, since people experience the urban landscape	Large scale. Larger buildings, blocks, wide roads. Less detail, since people experience the landscape/ builtscape at a distance
Transportation	Multi-modal transportation focusing more on pedestrianization	Auto-mobile oriented transportation
Connectivity of streets, roads and different linkages	Highly connected roads, sidewalks and paths, allowing relatively shorter distances for pedestrians	Hierarchical road network with numerous loops and dead-end streets, unconnected sidewalks and paths
Street Design	Mixed-Use streets accommodating a large variety of activity generation round the clock	Streets designed to maximize motorized vehicular traffic volume and speed
Parking supply	Limited supply and maximum management (although streets were not designed for this purpose)	Generous supply and minimal management
Public Space	Emphasis on the Public Realm	Emphasis on the Private Realm
Sense of Place	Unique Architecture with paths, edges, nodes, districts and landmarks creating an identity	Monotonous planning of communities due to which people hardly recognize places as they are similar in appearance
Sense of Belonging/ Ownership	Individual belonging to a place	Absence of individual responsibility
Sense of Security and Safety	Less crime rate due to eyes on street	Promotes crime rate due to lack of surveillance
Sense of Community/ Neighborhood	Social interactive spaces providing gatherings	Absence of interactive spaces
Social Coherence	People know each other	Motorists dominate
Appropriate Behavior Settings	Women, children and aged people can use all spaces	Most of the spaces cannot be used by women and children
Density at Town Center and towards the Edge	Higher density at the town center and lesser towards the (assumed) edge	Lesser density at the town centers and increasing towards edges or out-skirts
Quality Architecture and Urban Design	Human comfort for all age groups, disabled people and aesthetics in architecture	Discourages public amenities for different age groups, aesthetics and urban spaces (public realm)
Neighborhood Structure	Promotes traditional neighborhood structure completely in compliance with climatic and cultural conditions	Imitation of architectural styles of European countries that is highly unsuitable to be implemented in Lahore
Urban Sprawl	Promotes compact development and reduces urban sprawl	Promotes development of suburbs and results in urban sprawl

Figure-5: *Koocha-01 Haveli* Nau Nihal Singh

Figure-6: *Koocha-02 Haveli* Nau Nihal Singh

Table-2: **Inherent Characteristics of *Koocha* Nau Nihal Singh**

Parameters	Definition	Features	Contribution to *Koocha* Haveli Nau Nihal Singh	Visual Presentation
House Extensions	Spaces that are a part of the public realm but have acquired private character through physical modifications	Stoop is an enlarged step of concrete less than 39 inches width being used as a step, seat, a workbench	The public nature of this part of the house allows a greater contact with street life in *Koocha*	
Workplaces	Economic activities like small retail shops as *khokhas*, koisks etc	Simple hand tools and primitive techniques are used	*Koochas* are not just spaces for circulation and socialization but also being used as workplaces	
Small shops	Extremely small in size, their commerce and intimate proximity makes them important	Located right in the *Koocha* at corners and on ground level of houses	In the case of tea-shops they function as neighborhood meeting places and informal social centers	
Trees	Trees along with shade play the role of a public building in *Koocha* No.02	The public square grows around the tree and is common in informal *Koochas*	Shaded trees are used as outdoor classrooms, meeting places, workspaces and as markets	
Public Structures	Sitting platforms (present in front of Haveli Nau Nihal Singh) and entry gates act as public structures	Public structures provide identity to the public environment	Public structures act as landmarks and visual reference points in these *Koochas*	

Urban Benefits being offered by *Koocha Haveli* Nau Nihal Singh

Koochas in the informal settlement of *Haveli* Nau Nihal Singh have been formed by its users in such a way that they benefit every age group socially; from toddlers to the elderly alike. The comparison of lively, joyful and safest public *koochas* present in this informal settlement is to none. Some of the urban benefits of these small but lively, joyful and multi-functional piazzas can be listed as:

Scale of *koocha* Nau Nihal Singh

There are two main methods of categorizing squares; by function and by form. While analyzing the function of a square, Vitruvius(1486) states 'it should be proportionate to the number of inhabitants, so that it may not be too small a space to be useful, or look like a desert waste for lack of population' (Moughtin, 2003: 87). The types of spaces needed in a city are, the setting for a civic building, the principal meeting places, places for great ceremonial occassions; spaces for entertainment around buildings such as theatres, cinemas, restaurants and cafes, spaces for shopping, shopping street, arcades and markets, spaces around which offices are grouped, spaces of a semi-public nature around which residential accommodation is arranged, (Figure 7) and finally, the spaces associated with urban traffic junctions (Moghtin, 2003: 88).

Observing on a micro-scale, all the above discussed characteristics are fully justified by *koocha Haveli* Nau Nihal Singh. The presence of *Haveli* Nau Nihal makes this *Koocha* a setting for a civic building providing a great ceremonial place (Figure 8) with a lively mixed-use community. Semi-public nature with surrounding residential accommodation provides a greater level of security throughout the day.

Symbolic Meaning attached with *koocha* Nau Nihal Singh

All great civic art is in tune with the profound depth of our emotions. There is an aesthetic experience, a deep core of valuation which owes little to critical judgement (Moughtin, 2003: 88). Belonging to the nobility that once existed during the Sikh Raj (1799-1849) that influenced the Punjab region of the Indian Subcontinent, this *koocha* holds a unique sentimental affect in peoples mind. It nurtures their sense of superiority, once acclaimed grandeour that has to be achieved again.

Figure-7: A mixed-use building located in *Koocha* Haveli Nau Nihal Singh

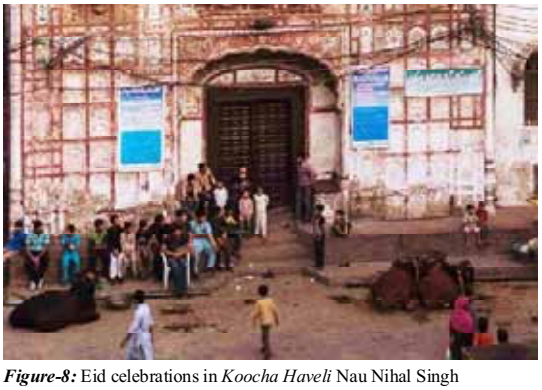

Figure-8: Eid celebrations in *Koocha Haveli* Nau Nihal Singh

***Koocha* Nau Nihal Singh – A Node; A Strategic Spot in a City?**

In '*The Image of the City*' Lynch(1960) found the node to be one of the elements by which a city is recognized and understood. In short, the node is 'imageability' or a strong image. As he says 'nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is travelling' (Moughtin, 2003: 89). *Koocha* Nau Nihal may be classified as a 'definite center', offering a remarkable influence on the micro-settlement as if a reason binding that micro-urban fabric.

The Form of *Koocha* Nau Nihal Singh

According to Paul Zucker and Sitte Moughtin (2003: 99) the five archetypal forms of a square are:

- Closed square where the space is self-contained
- Dominated square where the space is directed towards the main building
- Nuclear square where space is formed around a centre
- Grouped squares where spatial units are combined to form larger compositions
- Amorphous square where space is unlimited

While analyzing *Koocha* Nau Nihal Singh, a self-contained space having a direction towards dominated main building that is *Haveli* Nau Nihal Singh fits in the best (Figure 9).

Social Value of *Koocha* Nau Nihal Singh

Koochas enhance the sense of place by connecting the residents all together through socialization. In this way the anti-social behaviour such as theft, vandalism and arson is deactivated and youngsters are encouraged towards physical activities such as sports and indigenous games. Not only these multi-purpose spaces accommodate numerous activities like religious celebrations including Eid and Pakistan Day celebrations, but also help in increasing the morale of residents by enhancing cultural and political enthusiasm through adequate space provision. It is only through these *koochas* that children have safest spaces for playing indigenous games while their mothers can keep an eye on them from the kitchens (*bawarchi-khanas*). Major accessing streets are nearly pedestrianized having limited vehicular accesses ranging from push/ pull carts, mopeds, scooters and four wheelers.

AN OVERVIEW AND CONCLUSIONS

Due to the rapid population growth of Lahore, swift urbanization and modern movement's split function model of urban planning, in the next decade Lahore will be stretching far across south-west. Majority of the stretched landscape will consist of residential land-use. If the current trend continues, residential schemes located on out-skirts of Lahore will be deserted areas lacking social integration of people. A model of mixed-use lively community has been analyzed and a centralized foci has been discussed so as to inspire

Figure-9: Small scale kiosks in *Koocha*

the upcoming generation of architects, planners and road engineers in order to convenience them towards the benefits of our traditional rather indigenous planning techniques. A *koocha* has been studied so as to present each cluster with its own community socializing point. Foci helps in attracting the residents as if it is a magnet.

Koochas of a variety of sizes, form and function from the Walled City of Lahore are compared with present day trends and thus presented in this case study so as to portray that it does not matter what the *koocha* physically possesses but the space that it offers, the socializing benefits it presents to all the age-groups are a point of consideration. *Koocha* Nau Nihal Singh acting as a self-contained space having a dominated *Haveli* Nau Nihal Singh abutting its side can be referred as a prototype for designing focal nodes of futuristic urban housing societies. We could also analyze different clusters of historic informal settlements in Lahore through archival research in the chronological order of their development and documentation especially to study those beautiful and unintentionally carved *koochas*, recessed areas and pockets present in these clusters used by children for playing primitive games. As such no considerable work has been carried out previously in documenting these informal historically significant *koochas*. A variety of public squares and other informal meeting places acting as socializing magnets with multifaceted activities that take place in these areas can also be analyzed and documented. These findings can be easily incorporated in futuristic urban landscapes.

All the parameters discussed in this paper are proposed as a little effort in convincing those real estate developers who consider residential schemes as money machines merely. With the incorporation of *koochas* and other traditional urban crafts and benefits, these schemes may rise from mere money making machines to living spaces appropriate for *Lahoris* in particular and Pakistanis at large.

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ENVIRONMENTAL PERFORATIONS, A LONGSTANDING URBAN STRATEGY

*Muhammad Waqas**
*Muhammad Jawad***

ABSTRACT

The intersecting human and natural topographical proceedings within any space and time sets the stage for upcoming buildings and infrastructure, in the form of physical environment that is technically referred to as context. This study revolves around building interventions within a physical urban context and highlights the necessity of environmental sensitivity. The study explores thorough extractions from predominant natural potentialities, for improved building performance and reviews environmental efficient methods. Long-standing practices adopted for making buildings respondent to existing physical settings are studied. The focus henceforth is solar sensitization with reference to solid void orientation and solid void proximity.

Spatial surveys and analyses of model building envelopes are carried out to decipher environmental characters and its handling mechanisms. The buildings selected for analyses (Alhambra Complex, Granada, Islamia College, Peshawar and Agricultural University, Peshawar) are of incredible stature, and demonstrate prime importance while considering a particular era and locale. The analyses extents are infusing of building blocks and open spaces, mass void ratios, solid void orientations and proximity level.

The study suggests measures for solar sensitization and brings forth an indicative framework, comprising techniques and methods to break down solids and voids for maximizing environmental performance. Some objective design alternatives are recommended for overall massing of solids and voids to allow optimum daylight, air change and inwards-outwards vistas within an urban context while maintaining the integrity of prevailing settings. Several geometric configurations are hypothesized to diversify interpretations of the idea of environmental perforation.

Keywords: Environmental Sensitivity, Optimum Daylight, Inward-Outwards vistas, Solid Void orientation, Solid Void proximity

INTRODUCTION

Urban thinking and designing as put forward in Urban Design Guidelines for Hong Kong (1998: 121) is about setting "the framework for the physical and spatial arrangement and composition of built-forms and their three-dimensional relationship with the spaces around them and the surrounding settings for achievement of aesthetic and socio-cultural qualities". Space as the foremost and reflexive educator could sensitize its inhabitants about environmental significance and responsiveness. This study aims to indicate some fundamental contextual processes that could form a rudimentary parameter for prospective urban interventions.

The study commences with several research implications that present a framework for the subject stated and further explores age old wisdom behind juxtaposing principles within building blocks and between building blocks and open spaces. The spatial analyses are carried out to interpret environment sensitive arrangement of quadrangles and considerate positioning of building blocks within pleasing enclosures. Predominant natural potentialities, specifically light and wind are given thorough considerations, not only for visual depths, but aerating corridors are formed to cope with intensity of temperature in hot regions. This is a common design strategy implemented in different forms. Design attitudes are surveyed to coin upcoming urban and regional developments responding to existing settings. Design considerations in urban context are investigated and various recommendations are put forward towards the culmination of this study. Some environmental opportunities, such as courtyards and sun envelope, are reviewed to help orient buildings in an existing urban scenario so that forthcoming developments mark positive impacts on its surroundings and extend a healthier contribution to living.

The study proposes some design considerations for overall placement of solids and voids to allow optimum daylight and cross-ventilation in an urban context, while maintaining the integrity of existing environment. Means are worked

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out for urban extension to enhance natural ventilation and efficient performance within existing settings without affecting surrounding building envelopes. Measures such as provision of light, wind and views towards and from neighboring buildings are thoroughly reviewed.

Research Objectives

Design strategies for a physical environment that will focus on the use of predominant natural potentialities, specifically:

- Light and visual perforation of and through building masses
- Winds and natural ventilation in urban settings.

Research Methodology

Pertinent research implications are analyzed for this research to form a roadmap and referential ground for further investigation. Spatial surveys and analyses of model building envelopes are carried out to decipher environmental characters belonging to these space envelopes and environment responsive handling mechanisms. The analyses include infusing of building blocks and open spaces, mass void ratios, solid void orientations and proximity level of the case studies selected.

Literature Review

On the subject of open to covered space percentage Reynolds (2003) implies that a typical zoning regulation for courtyard-type neighborhood is that 25% of the site must be open to the sky, whether in one large or several smaller courtyards, to serve effectively as a conduit of light and air.

Blaser, (1985) in a critique on courtyard scheme of architect Y.C. Wong (Figure 1) puts forward the recommendation that humid summers and savage winters in a downtown residential district (Madison Park) can be controlled through courtyard planning. In the dwellings designed in 1961 with one (remote) parking space per dwelling, each courtyard served its house on three sides. Only two openings, each a door, penetrated the exterior of each row house. Half of these houses placed the living room to the north of the courtyard, where it could receive maximum winter sun.

A correlation between sunlight and window size (Figure 2), is established by Stein and Reynolds (2000). Daylight penetration from windows or doors is usually adequate in a zone that extends to a maximum distance of 2.5H from the opening; where H is the opening's height above the floor.

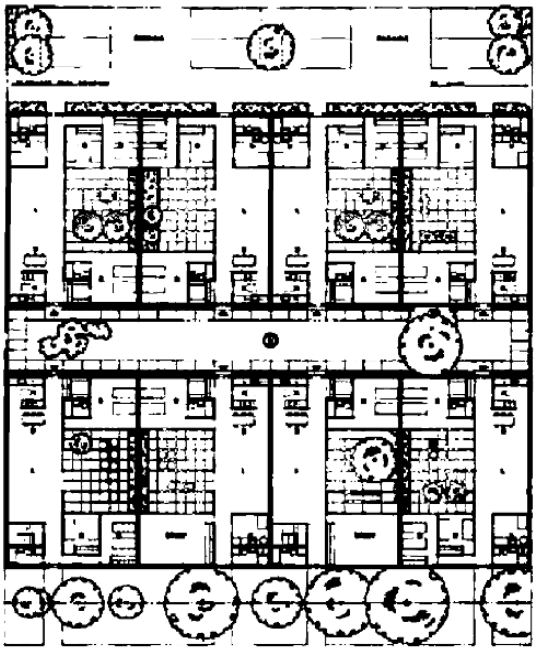

Figure-1: Chicago courtyard town houses (1961)
Source: Blaser, 1985

In terms of the width and depth ratio of rooms, rooms that face the courtyard should ideally be wider along the courtyard than deep. A typical proportion is three times as wide as the depth. In such designs, daylight from the courtyard can fill the room more evenly. Obviously, this limits the number of such "ideal" rooms that can face the courtyard.

Knowles (2003) argues that at the urban scale, the concept of solar envelope provides a means to regulate development within imaginary boundaries, derived from the sun's relative motion. Buildings within this envelope will not overshadow their surroundings during critical periods of the day and year. The solar envelope provides zoning for low impact development and opens new aesthetic possibilities for architecture and urban design.

On solar access Robinson and Graham (1938) argue that this idea goes back at least 3000 years to the colonial cities of ancient Greece (Figure 3). Gridiron plans, attributed to Hippodamos of Militus, were arranged in a manner that all houses faced the sun for heat and light.

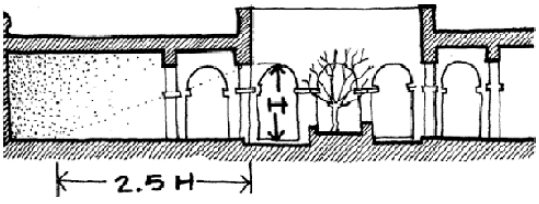

Figure-2: Drawing: Michael Cockram.
Source: Stein and Reynolds 2000

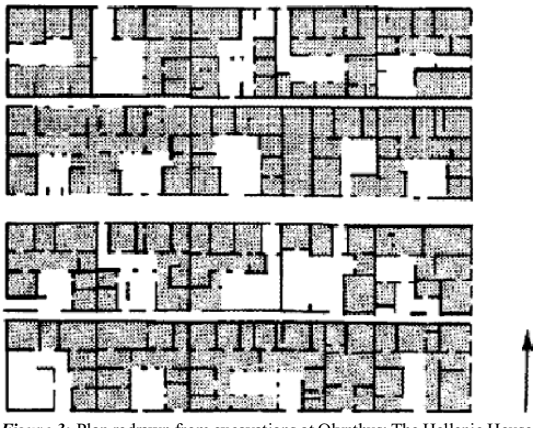

Figure-3: Plan redrawn from excavations at Olynthus: The Hellenic House
Source: Robinson and Graham, 1938

Knowles (1981) establishes that the distance between rows of houses should be just sufficient to avoid winter overshadowing of terraces and heat-storing walls (Figure 4). It was the observation of this critical relationship of building-height to shadow ratio that originally gave rise to the solar-envelope concept.

Spatial Analysis and Findings

Complex, Granada, Spain: In an analysis of the Al-hambra complex in Granada, Spain it was ascertained that diverse proportions and shapes are interwoven to achieve not only a visually balanced complex, but the design of Alhambra in Granada is a very precise response to the climate of Spain (Figure 5). Besides the lavish architectural details, the overall massing of this complex is well thought out as adequate climatic response. The open to built ratio of the complex is nearly 1:0.4. Almost 40 percent of the complex constitutes open spaces. Visual stability and ecological balance is achieved through enigmatic geometric composition. The North South orientation, with a tilt of approximately 17 degrees towards the north is a climatic response to solar angles.

Islamia College, Peshawar, Pakistan: The interplay of solids and voids is recurrent in this building, which was constructed during the colonial period (Figure 6). The usage of brick and architectural vocabulary represents its time of construction. Isolated courtyards are interconnected through bays running across building blocks with green avenues in central open areas. The overall composition of solids and voids is symmetric in geometry.

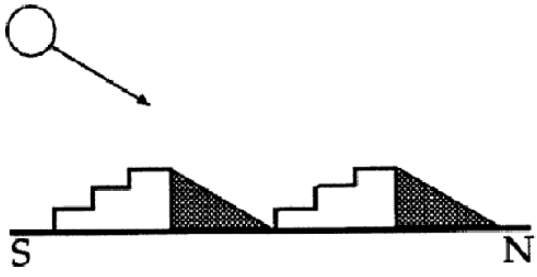

Figure-4: Rows of houses at Acoma Pueblo are strategically spaced, no further apart than necessary, to avoid winter shadows while conserving space on a small plateau site.
Source: Ralph L. Knowles, 2003

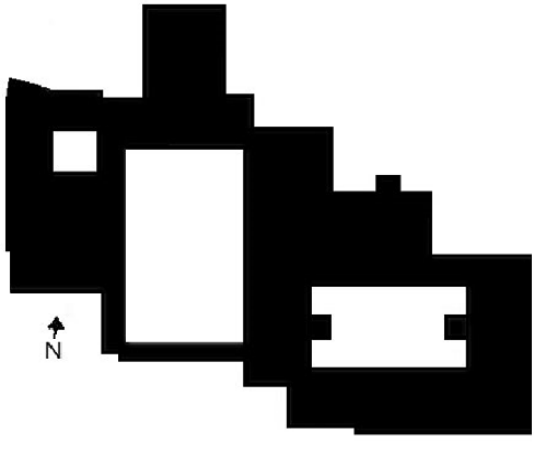

Figure-5: Alhambra: Fortified Moorish palace of the Muslim kings, built between 1248 and 1354 AD near Granada, Spain.
Source: www.googleimages.com, accessed 24/3/13

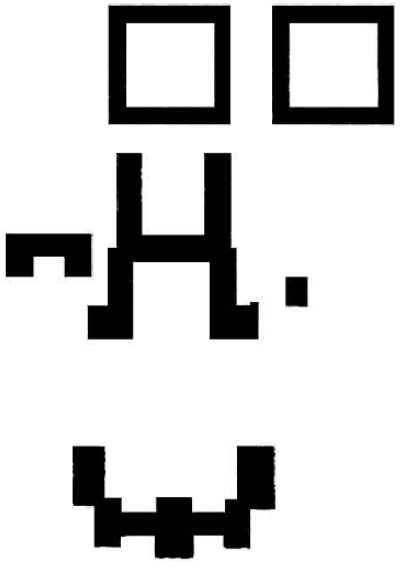

Figure-6: Islamia College Peshawar, built in the beginning of 20th century
Source: www.googleimages.com, accessed 24/3/13

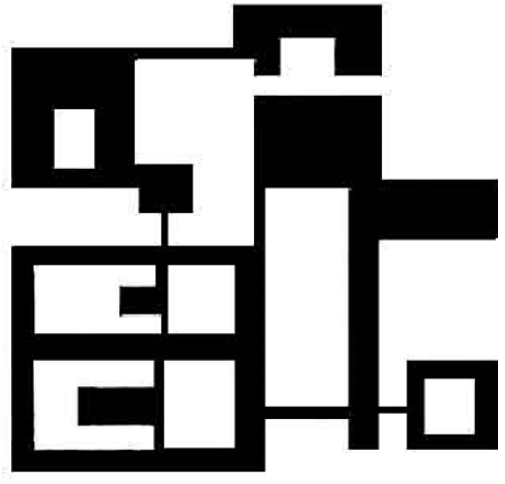

Figure-7: Agriculture University Peshawar, Skidmore Consultants, USA, 1990's

Agricultural University, Peshawar, Pakistan: Though completely disconnected in visual facets, a visible modernist handling of facades is predominant at the Agricultural University, Peshawar, Pakistan. The architectural firm Skidmore, USA, revives the ages old spirit of interwoven courtyards and building blocks in the overall behavior of masses (Figure 7). The solid and void ratio is relatively generous i.e. 1:1. The floating courtyards are blended mysteriously upon apparent close-ended long covered passages, that cusp with both the blazing sun of Peshawar, and the occasional precipitation.

Recommendations

Light and wind conduits for building chunks in urban settings are inevitable for creating healthier environment. Legislation in the form of tangible urban design guidelines is impelled to handle growing demand for higher occupancy, which is pushing urban dwellers to live devoid of fresh air and natural light. The concept of perforated urban communities and complexes might be advised as an essential part of new developments. This idea could be materialized by establishing a thumb rule like a proportion system e.g. proposals of Reynolds (2003) and Stein and Reynolds (2000). The idea of perforated masses, as demonstrated in (Figure 8), could

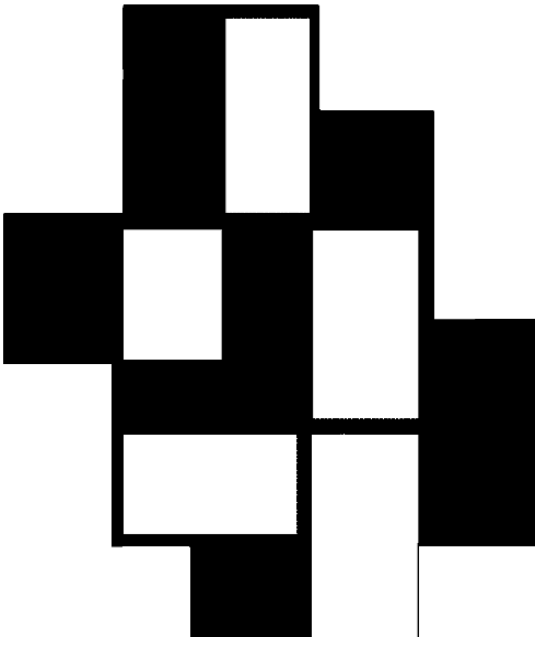

Figure-8: Idea sketch representing ages old wisdom of handling solids and voids.

have multiple contemporary interpretations. These interpretations would depend upon the nature and restrictions of functionality and site form, as well as on the emergent post-modern aesthetics of abstraction and aesthetic language.

Curvilinear representation: The concept of intermingling solids and voids that could be translated on an urban scale should be reviewed (Figure 9). This configuration will suit vehicular movements and would create less hurdles for urban mass transportation system. On a smaller scale this formation (Figure 9) would form smooth transition between solids and voids.

Abstract representation: The age old idea of perforating solids and voids is translated as juxtaposition of building chunks and breathing open spaces with enhanced connectivity, distance reduction and spatial unpredictability. This idea (Figure 10) could be translated on a regional level as well, for detailing a building block. To further augment its workability this formation could be oriented according to the wind's behavior.

CONCLUSIONS

Based on the research and analysis of case studies this paper argues that the interconnectivity of solids and voids with a range of ratios i.e. from 25% to 40% and beyond is a favourable urban configuration depending upon the nature of project and space availability. Solids and voids could be interconnected in a way that continuity and sense of infiniteness is achieved through interesting yet simple channeling of spaces. Solids could be broken down to cater for improved light, ventilation and for producing views and vistas by infusing landscape, and streaming across subtle geometric objects. The perforation would also cater for solar-envelope, a very important factor, advocated by Knowles (2003) and would hence create opportunities for daylight penetration and allow the designer to practice exact or similar ratios as implied by Stein and Reynolds (2000), which according to them are essential for healthier daylight. The ideal orientation for a building is north-south. The ideal placement of a single courtyard is southwards, for better performance of the building both in summers and in winters, however, it is preferred to have an open space on the north side for better performance in summers.

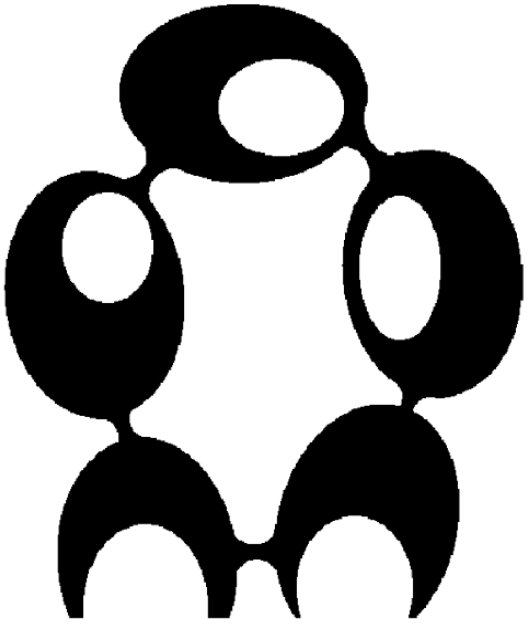

Figure-9: Sketch based on the concept of intermixing solids and voids with curvilinear representation.

Figure-10: Abstract Geometric configuration: Drawn out of two symmetric grids emerging from two different pivots.

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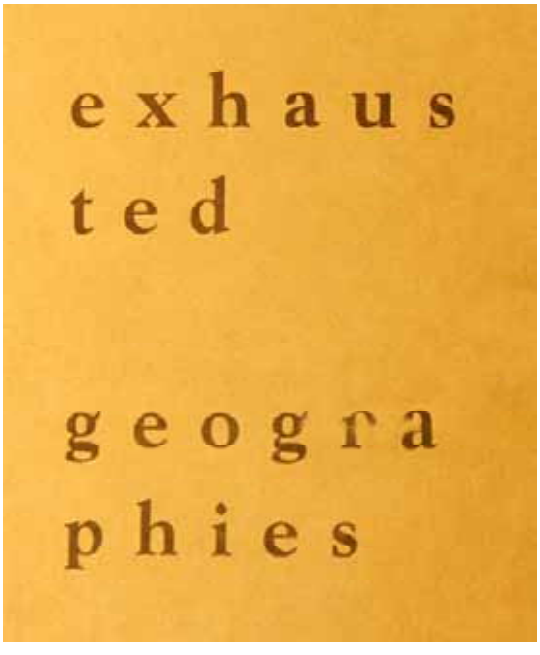
BOOK REVIEW

EXHAUSTED GEOGRAPHIES

by

Shahana Rajani and Zahra Malkani*

A Review by
Suneela Ahmed, Assistant Professor, Department of Architecture and Planning, NED University, Karachi



This new book, edited by Karachi artists Shahana Rajani and Zahra Malkani, explores the complications attached to mapping of Karachi. The authors shed light on the history of the city, in terms of the memory of space, urban fabric, social and economic patterns and political and ethnic tensions. Many faces of the city are presented, as authors belonging to various professions view the city, highlighting the various facets of the city and the complexity it offers. Some of the texts are based on extensive research exercises, whereas others are personal observations and experiences which are presented abstractly.

Not only is the concept of the book fresh, its packaging has also been done quite uniquely. It comes in a charming box pack, and contains seven booklets, each with a different author. Each of the booklet in turn has a flip-out map or a graphic image which illustrates the text. The contributing authors to the book are Nausheen H. Anwar, Yaminay N. Chaudhri, Zahra Malkani, Shayan Rajani, Shahana Rajani, Fazal Rizvi, Anam Soomro and Sarwat Viqar. Some authors, like Nausheen Anwar, map the city scientifically, whereas other authors, like Yaminay Chaudhri, present a very personalised account from her early childhood days. Fazal Rizvi, presents a photographic documentation of the city.

Nausheen Anwar, a prominent sociologist, and Assistant Professor at Department of Social Sciences, IBA, reviews the city through the lens of an urban anthropologist, and dwells on the role of cognitive mapping and cartography in documenting the city. She highlights the role of maps in reinforcing the political visions in a complex city like Karachi, bringing together the cartographer, state and non-state actors and the non-state power dynamics. Thus, mapping for her 'becomes a key means of territorializing state control and excluding/ including particular people by reference to a specific piece of land marked on a map'. The illustration in her booklet maps Karachi in terms of the effects of political dynamics of Khyber Pakhtunkhwa over Karachi.

Rajani and Soomro, an artist and a lawyer respectively, map the city in terms of political decisions and their urban impacts. Their essay is entitled 'a geography of exclusion' and discusses the urban processes through which different groups

* Shahana Rajani and Zahra Malkani are Karachi based artists.

of people have been excluded from the decision making process in the city. Their focus is on the first two decades post-independence of the sub-continent. They have also included a map documenting the shifting and relocation of early migrants from 1947 to 1967. They question the basis on which these decisions about shifting the refugees was undertaken, and touch upon the notions of equity and right to the city of the people belonging to low income groups. Yaminay Chaudhri, an artist from Karachi, questions the 'visual architecture of longing in projections of Karachi' and the process through which it is built and represented. Her personal account deviates from an academically oriented discourse, and weaves a relationship between urban spaces and the memory of its users. Her account is based on her childhood memories from her residence in Darakshan Housing Scheme, on the beach front in Karachi. Starting out with the description of an ordinary morning, she goes on to describing how many design elements of Darakshan Scheme were never built. Her maps in the booklet document the housing scheme, her daily routes and different types of construction that have taken place in the neighbourhood over time.

Fazal Rizvi, in his attempt to explore the relationship between colonial identify and migration presents his understanding of the city as visuals. These visuals range in scale, chronology and topography from a room, to a building, to a street, to a landscape element in the city, belonging to different chronological periods.

Malkani, has divided her booklet entitled, 'Seeing the missing: Four Landscapes', into four geographis, namely Ghost Geographies, Memorial Landscapes, Disappearing Images and Cybergeographies. She discusses the issue of the disappearance of Baloch people and the struggle of the Baloch nationalists. She does not state confrontational facts but she maps the disappearance of the Baloch people as time and locational maps, with perhaps the objective of visually presenting the issue, which professionals and the government is not very comfortable in discussing in public space. She also discusses how with the shrinking of public space, and because of suppression from the government, the movement of the Baloch nationals has shifted to cyberspace - the new geography, and is continuing through social media websites like Twitter and Facebook.

The essay by Shayan Rajani entitled 'Naqsha-i-Vilayat-Sindh', maps the cultural evolution of Sindh and attempts to understand the political and historical connection. This account is a historical map of the evolution of various cities in Sindh and their influential families. This is a value-neutral account, presenting thought-provoking facts about the province, and the impact of the historical evolution of the different cities from within Sindh.

Sarwat Viqar's mapping of the Old Quarter of Karachi discusses the sense of place and the inability to map the social aspects in the form of a tangible map. Her essay discusses the various layers of the Old Quarters that give the locality its complexity and uniqueness.

The series of booklets included in this publication approach to instill an understanding of the city from various different perspectives, which is interesting, but the intellectual contribution of the publication could have been greater, had more meaningful literature been included in the publication and had the research base been stronger. Nevertheless, the publication provides a fresh way of looking at the city and hints towards various ways in which people engaged with the design of the city and the built form can develop an understanding of the various layers of cultural, social, economic, governance and physical aspects of Karachi. Lastly, this book is a good resource for people wanting to understand and reflect upon various social, political, economic and physical phenomena impacting Karachi on a daily basis, for the dedicated researcher, to the casual seeker of knowledge about the city.

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