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Design ideology through architectural identity: A hybrid dynamic potential

Mai M. Youssef
Faculty of Fine Arts, Alexandria University, Egypt

ABSTRACT: A city's identity is an act of interplayed synthesis of different patterns through arts and architecture to form its basic structure and planning. This shows not only in a direct link but in a collaborative, shared relationship between architecture, arts and the preserving of cultural identity. During the life cycle of a building, a lot of changes happen to the structure and the facades, which reflect on the interior divisions of the space and its ability to meet the user's requirements. This paper focuses on representing the present cultural identity through smart materials and digital fabrication techniques in a dynamic potential that reflects the diversity of internal spaces to integrate with the form of the architectural building. It relies on smart materials and untraditional patterns in interior spaces, structure, and interactive responsive properties without pulverising or neglecting old values. It signifies a specific hybrid revival concept underlying the visual aspects in architecture to deploy this metamorphic ability characterised by diversity; transformation through modern technology.

1 ARCHITECTURAL IDENTITY BETWEEN PRESERVATION AND NEGLECTION

1.1 *What is architectural identity*

Cities are mainly identified through their architectural features and arts in several ways: as an expression of culture, as an aspect of development and as a functional liaison between the people and the environment. Emergent trends in arts now possess the power of integrated patterns, structural form and the responsive ability to be coherent and work in accordance with the architectural identity derived from within. Architecture has through the ages, been a transcended way to preserve this identity and adding more values and perspective. It translates the advancement and development of the city into structures, buildings, urban planning and interior spaces; therefore, architecture shapes and clarifies the main characterized aspects of the city and creates a distinctive identity. The interplay of these functions serves as a dynamic force to insert the technological development to preserve a city's identity.

The identity of a city represents a special curriculum in all aspects of life and the most important of the style of the building, but today with modern technology and urban growth, the structure became one solid and irregular liaison between variant patterns and a mingling of cultures and ideas, unable to maintain a well-defined concept. Therefore, this has paved the way for the collapse of architectural identity through engagement with other cultures, and there is no doubt that architectural identity is fading (Heynen, 1999).

The importance of each individual nation is having a distinctive identity; it was mainly seen from the architectural perspective exposed only to the advantages of global integration. This merger covers important elements correlated to the culture, such as the planning, the belonging to the land, the conservation of the existing and how to modernize it with extensions, specific materials, and defined patterns. The similarity between many architectural features led to canceling distinctive characters to make copied constructions without thinking or looking at the other side factors and their impact on every nation culturally, socially and morally. Numerous of the historical architectural eras and ancient eras have many similarities

between them, but there are also many features of each era that are different from the others, and this consolidates the importance of each nation and every era from the other. In the past, it was quite easy to identify each places's own architectural identity from a vision of the buildings, but nowadays, especially in the suburbs, it is hard to distinguish the identity of the architectural structures, nor its history and the style of any used of pattern in the existing buildings (Conway & Roenisch, 2005).

There are several factors that have contributed to the disappearance of architectural identity, most notably the lack of awareness of the importance of a present identity portfolio of their history. Also, certain laws that have been enacted by municipalities are responsible for the movement of construction hat has disturbed the retention of traditional architectural identity (Baudrillard & Proto, 2003). The Arab, influenced by the world's great admiration for Western culture, soon became open to their customer, the use of excess material, globalization and neutral principles that have become the basic concepts of the present era. These factors contributed to the loss of our Arab identity and disappearance of its distinctive architectural features.

1.2 *Architecture and arts defined as cultural heritage*

Architectural heritage is considered to be one of the most important aspects of human development in all periods of history. The urban environment was influenced and changed by the needs of each stage of human evolution and thus produced what we see today, 'architectural heritage' that was part of life in the past: similarly, our needs today produce the buildings and facilities that we use in our daily lives. These translate the risk that lies in wait for our Arab nation, as it has long been characterized by cultural and religious character and distinctive intellectual wealth. It manifested itself throughout the ages, as it was respected and admired for its progress and development by the different civilisations of the world. Then, Western culture imposed due to sources of globalisation (with its economic, military and technical global influence). It promoted itself as the best single culture and the extension of cultural hegemony was able to replace Arab culture. There is no doubt that the Arab architecture was affected dramatically, as it was exposed to many factors that aimed to undermine its distinctiveness. When we wonder about the architectural style used in residential buildings, we do not find an answer to this question because of the absence of the atmosphere and method that characterised Islamic architecture, such as a unique style, wide circulation, geometric patterns, internal partitions, ornamented facades and absolute privacy (Petruccioli & Pirani, 2013). Now, we are

Figure 1. Represents a photograph taken of two different buildings in Cairo, Egypt. It demonstrates the contradiction and the peripheral cursory external façade, thus the loss of architectural identity.
Figures 2 and 3. Represent Masdar institute residential facades in Abu Dhabi to demonstrate the preservation of identity through architecture using Islamic geometric patterns and modern technology techniques.

heading towards a blind identity that is not tied to our history or the roots of our civilization and culture that we rarely see them. We find ourselves with the loss of almost all of our full cultural identity, unable to cope with the rapid development of Western culture, faced with a problem that is not easily solved without data and national perspectives.

1.3 *Significance of the study*

This paper aims at promoting Arab cultural identity concerning interior design, and distinctive features, regardless of the style used.

Each culture has its own identity and characteristic features that refer to the dimensions of its existential forms, advantages, proprieties, atmosphere, indications, customs and inevitable privileges. This special identity is the ability to see the difference between cultures and recognise their nature, even in the absence of any connection or relationship.

Because architecture and the arts are the foundation of cultures and the way that they are identified, architectural identity varies mainly depending on the self-variation of its people through time, the geographical area and from one civilization to another. Some civilisations still trigger a specific recognisable identity through the art, structures and architectural features that they practised thousands of years ago.

Certainly there may be things in common in the architectural language of many civilisations, but those that are still considered to have an inherited identity are those characterised by a certain distinctive aspect in their architecture and the history of their construction. These architectural features of certain cultures are the main determinants and the essential foundations for so-called 'architectural identity' and this particular identity is one of the main pillars of preservation in order to document the history of peoples and their existence, and the interests of individuals and civilisations by emphasising their own identity in their planning, urban environment, arts and architecture. We can restore the heritage features in the form of the vocabulary that we feed into the modern models that are compatible with modern needs and contemporary dimensions which are known as identity. Bourassa says 'The identities of cultural groups can be achieved symbolically, there is no culture without a system of symbols to represent this culture, and culture does not seek to only confirm the figurative but seeks to maintain itself through these forms' (Hubbard, 1993). Human nature is based on building strong relationships with the surrounding figures, and expressing the attributes linked to beliefs, values and norms over time.

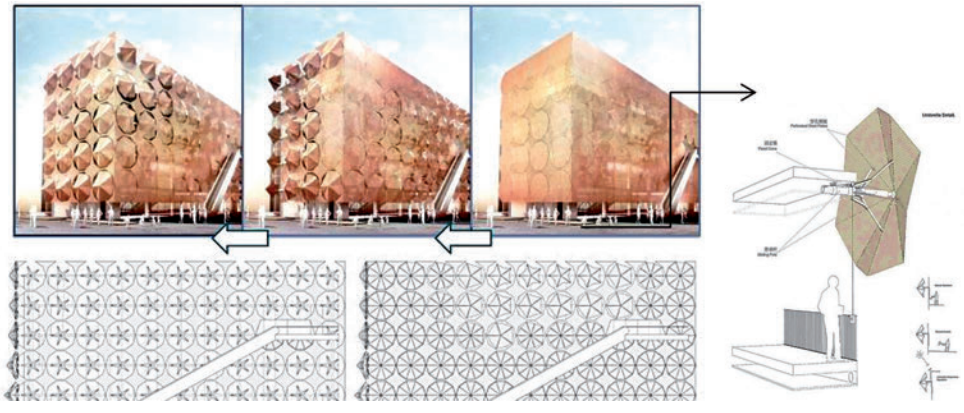


Figure 4. Illustrates the Umbrella façade, Shanghai expo 2010, China. The design is inspired by the cultural identity—the model is the Umbrella which is a common and well-known cultural feature Conceptual design:—Interface screens with an umbrella-shaped foldable mechanism, each one opens by a central joint spring-loaded, allowing the users to open or close the shades to protect the glass façade and the interior from the sun in the summer and allow more light in during the winter. The idea is to make every umbrella controlled by the rotating movement of the mechanism to allow people to engage and respond with the building and the surrounding (Youssef, 2017).

1.4 *Historical backgrounds*

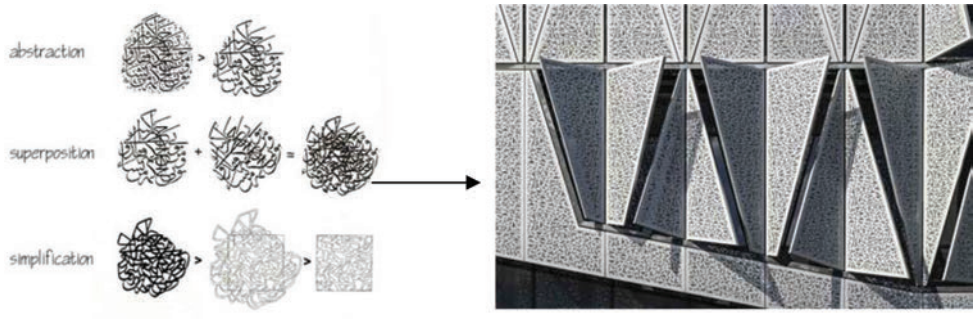
When the Muslims first entered Egypt, they found blocks and architectural features of different styles from different eras. Pharaonic models, Ptolemaic remains and two features of Christian architecture (the dawn of Christianity, Constantinople) were the inspirations for the Islamic architecture. They took the Constantinople-style dome, the columns of the Pharaonic and roman models and the idea of the minaret to inspire of the building of the church towers. The Egyptian Muslim artists started shaping the Islam Egyptian culture, which was characterised with specific features, for example, they were not concerned that Egypt had consistently limited the ornamentation of the walls of temples. Within the prohibition of Islam, they replaced them with specific ornaments, carvings and plant-line mutations and excelled in them; they created systems and a vocabulary consistent with being a Muslim «Egyptian» (Petruccioli & Pirani, 2013).

Other models that continued in Egypt were the one seen during the Mamluks era because they adopted a high proportion of the Egyptian cultural heritage, and the Mosque of Mohammed Ali pattern from Hagia Sophia. One of the most striking examples was the Byzantine ornamentation in the Ottoman Architecture, as well as the minaret of Ahmed Ibn Tulun mosque taken from the twisted Samarra in Iraq. Pharaonic heritage had an impact on Islamic culture and was reflected in the Islamic architectural character, and we find evidence on this in the military architecture gates of Cairo, which are very similar to the stated Pharaonic temple and in the similarity of the Islamic content within the contexts of architecture and expression. The prosperity of the Islamic state has influenced world civilisation, as it purely resembles the architectural elements, different vocabularies of expression, ratios, calligraphy and geometric patterns that have produced the parametric patterns and algorithms seen in architecture nowadays.

2 THE ART OF ARCHITECTURE AS AN EXPRESSIVE INDENTITY

2.1 *Towards a new dimension in architecture*

Nowadays, what we see is a state of architectural chaos and clear evidence of the loss of the features and determinants of personal and national culture; the city's identity has not yet been determined. The buildings became architecturally deaf and lacked both the defined pattern and the means of interaction with the user. The Egyptian character faces more deformity and loss of features and many develop a distorted vision of identity, purpose and mission. Although the basic intent of architecture is to achieve stability, we plan shelters to actively seek balance by using behaviours that involve a frequent adjustment in order to accommodate changeable settings. Smart materials are the hybrid mechanisms used as adjustable interactive factors: they are inherently designed to become an integral part of life and activities (Jaskiewicz, 2013).



Figures 5 and 6. Demonstrate how to engender complex patterns that differ in size, form and direction using Arabic Islamic calligraphy and how to use these generative patterns to characterise architectural facades.

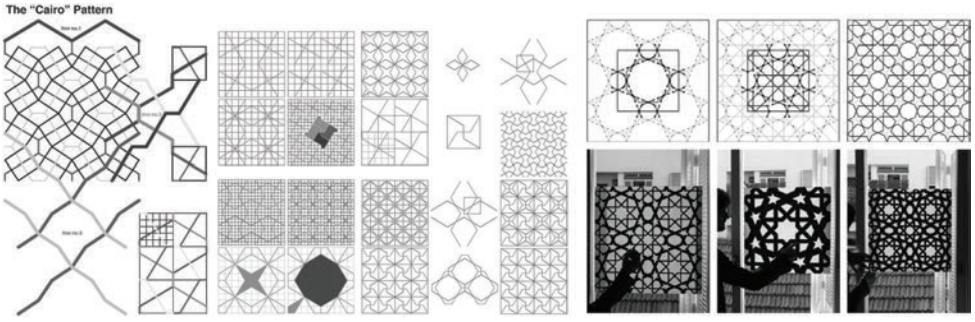


Figure 7. By analysing the urban radial planning of Cairo, many linear or curved patterns are engendered. By simplifying the lines, the planning of the city turns into intersected patterns, therefore, following simple methods of addition and subtraction, we can create new generative forms.

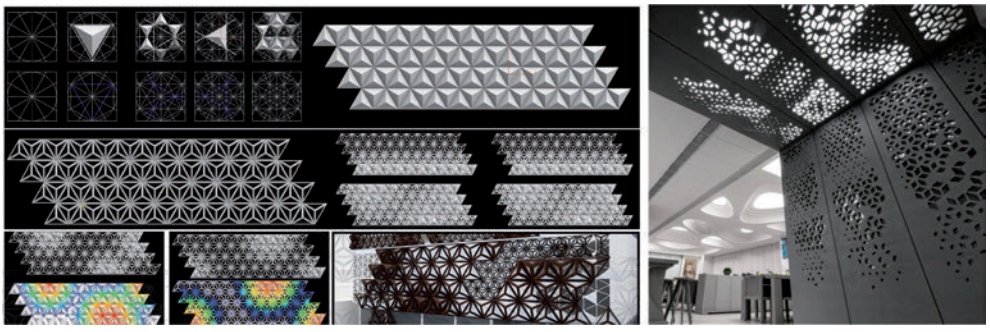
Linear lines are combined and interrelated to form a matrix of Islamic patterns, as Cairo was last influenced by the Islamic culture. Underlining the concept of preserving this particular identity, these patterns are inserted as decorative ornaments and digitally fabricated to enhance the design aesthetic peculiarities in both the external facades and internal wall claddings and partitions.

Computer embedded systems have replaced static structures with active shape-changing ones that reflect the design process. They have helped to engender intelligent, compatible and distinctive functions and interactivity. This blurs the distinction between the simulated and the generated structures and opens up the possibilities of developing space associations based on independent and group behaviours. This framework starts initially with a basic unit that has the ability to undertake distinctive form arrangements through an open finished combinatorial procedure, with novel locomotion and self-structuring qualities (Oxman, 2008). The unit emphasises its kinetic mechanism, joint system, self-governance and the unification of the entire system. The kinetic function is an essential feature of dynamic structures that depends on the division of the wooden surface into modular repetitive units. Responsive design appeared as a developmental movement altering the functional dimension of interior spaces. It is a response to the spatial adjustment and the interaction with the surrounding bi-folding movement.

The metamorphic design is an emerged pattern, a multifunctional concept created to perform any given task to the implanted design. It is an adaptive structure that contributes synergetic arrangements from models generated from multiple inspirations; it creates spaces parametrically by following mathematical equations to produce a complex structure that is automated and efficient (Kim & Maher, 2008). It is an interactive form that is continually changing to create balance, perspective, symmetry, and consistency. It uses a computational knowledge of the design principles, patterns, proportions, ratios, and mechanisms. It provides the necessary guidelines as a balanced shaping force to meet any demands. It affects the function of interior spaces, the performance of its contents, their responsive behaviour, thought structure, kinetic movements, generated models, human interactivity, sustainable energy and other ontologism. Also, through their proximity and implementation in every function and performance, these materials play a potent part when it comes to symbolic and multifunctional expression.

2.2 *The design's identity*

The study of architectural identity has a significant impact on the ingenious process of the geometry of space. Architecture is a form of space order. The plan dialectic in architecture and design reflects the way we think, interact, and learn. A developing level of understanding of interior spaces and the environment is considered the next step in the design evolution. This space information template responds to the environment or other sources and possible factors that affect the design by turning them into equations or graphs and then applying them to the



Figures 8 and 9. Illustrate the application of different Islamic patterns in interior spaces. These spaces have the capacity to self-reconfigure to respond to human stimuli-will as they tend to adapt individually.

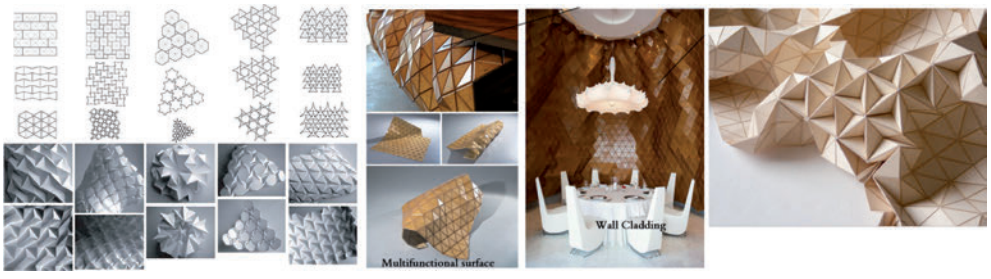


Figure 10. A series of forms inspired from the Islamic patterns of the urban planning of Cairo to create a new dimension of foldable surfaces using a sustainable material as a multifunctional surface (wood).

shape to change the design (Lunenfeld, 2000). All of this has led to the birth of new styles of architecture that did not previously exist, such as folding, parametric, and digital. From different cultural identities and architectural features, it engendered modern design trends as a result of the merging and integration of computer power and computational architectural technology and translated it into design configurations, such as the facades of buildings, structures and interior partitions that adapt environmentally known by their diversity and shape shifting through a combination of simulation technology, arithmetic design technology and digital manufacturing techniques. They allow space to be continuously shaped by being exposed to different conditions, such as environmental surroundings, temperature and pressure, to answer the requirements of the function of the space and its users.

Another pattern was inspired by the distinctive architecture of Hassan Fathy, creating a style of non-static architecture to ensure a self-efficient building and eco-friendly material compatible with the environmental surroundings. It preserves its defined identity while providing a source of natural ventilation. This material is hygroscopic, so it responds to the degree of the humidity and weather conditions, as demonstrated in Figures 12 and 13.

This kinetic movement is duplicated digitally to explore and understand the methods of convergence between the different units and the system. The transformation of these assemblies from one state to another will allow the emergence of a system that is capable of adaptation and dynamic behaviours that will give the structure the autonomy to interact with other objects as well as responding to its interior spaces and the needs of its inhabitants. Another distinctive identity is manifested in the distinctive structural pattern of the Cairo tower, which is, in turn, influenced by the shape of the Lotus Pharaonic column. This pattern can be re-executed parametrically using modern technology and computer programs. This form of a combination of tectonic units can be used to construct a variety of algorithmic structures as an envelope of architectural buildings, towers, skyscrapers or in interior spaces.

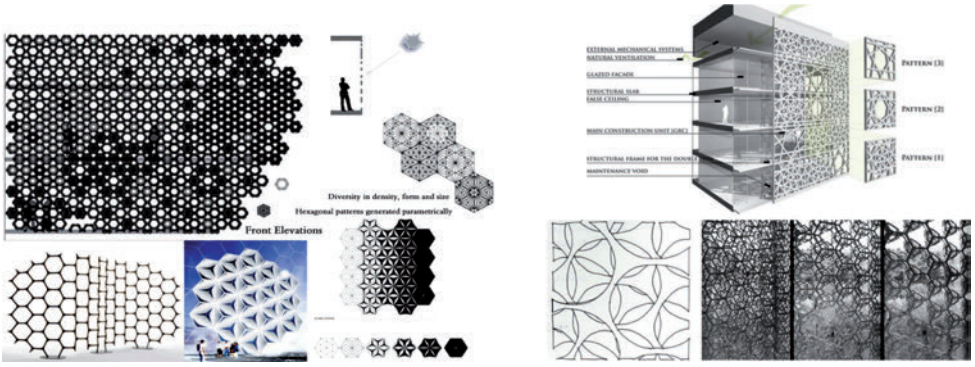
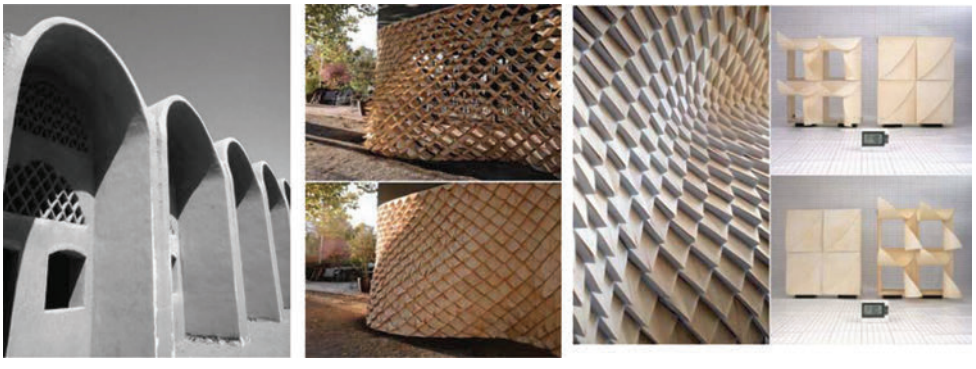
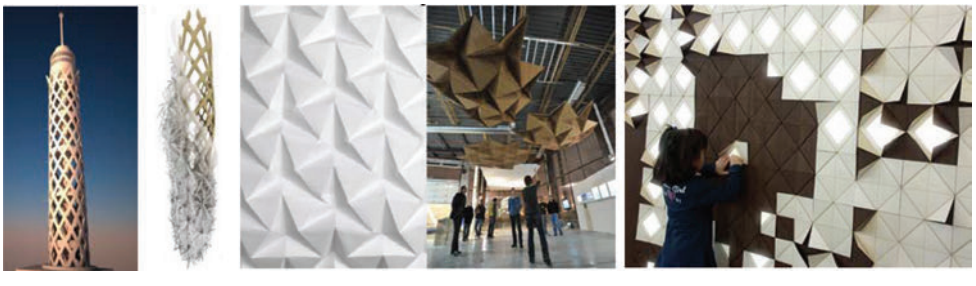


Figure 11. These structures prompt a wide range of distinctive spatial aggregations that are continuously reconfigurable and a variation of coloured glass that reflects during daylight in interior spaces.



Figures 12 and 13. Each component is designed so that it could differentiate itself through morphological behaviour to become part of the structure, then acts as a whole system and is driven by its single parts.



Figures 14 and 15. Demonstrate the implementations of the pattern of the Cairo tower translated using digital tools into determinants of the interior spaces that inherit its structure and identity.

3 CONCLUSIONS

As a conclusion, the forms of architecture, arts and design, as images of culture and civilisation, have changed in Egypt, not only with the change of belief, but in the expression of the terms of ideology as a symbol of the transition of the features of cultural identity. This was expressed in the various arts, particularly in architecture, which monitored how the Egyptians could preserve their cultural identity through adapting designs to suit the renewable data

within the different stages of evolution during the disparate eras that have passed. Accordingly, these changes did not cover it up nor replace the primary structure, but it was originally drafted and clearly formulated in various forms of human expression and cultural interaction by the ability of modern technology. Smart materials are deployed to utter what has not been expressed and represented in a hybrid untraditional pattern; they are more engaged with the environmental surroundings and responsive to the knowledge of cultural identity. In construction, the data represented in the 3D digital space has generated new ways to analyse and construct complex forms. For instance, by using code we are able to deconstruct the form and link the model with new fabrication techniques, such as CNC milling, laser and plasma cutters.

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The mutual influence of the Mamluk interior architecture and urban planning in Damascus

Karam Abdallah
Department of Interior Design, Faculty of Art and Design, October University of Modern Science and Arts, Cairo, Egypt

ABSTRACT: During the Mamluk era, Damascus was again the capital of the Levant area and the main passage for the Hajj convoys that travelled from all of the countries in the east to Mecca. This research establishes a study of the relationship between Mamluk political and religious concepts concerning the distribution of the main Islamic buildings in Damascus, the impact of this distribution on the urban planning of the city and, finally, the impact of all these factors on its interior design.

1 INTRODUCTION

The Mamluk sultans were new to embrace Islam, and so their main reason for strengthening their rule over the Islamic region was to obtain legitimacy, through taking over the status as the defenders of Islam and its sacred places. To achieve this aim they applied several methods, some of which had a significant impact on the architecture and urban planning for the cities. The methods they used were as follows:

Firstly: They launched their first mission to fight and expel the Crusaders from Jerusalem.

Secondly: They protected the pilgrimage route to Mecca in all of the countries under their control, which led to the re-emergence of the pilgrimage route from Damascus to the south.

Thirdly: The Mamluk policy to consolidate their rule also involved getting closer to the Islamic nations through other social and intellectual aspects, such as spreading fads that were related to religion and exaggerating the celebration of religious ceremonies. The most important of these was the pilgrimage howdah, which was invented by El-Zaher Baybars in Damascus at the beginning of his reign in order to prove his sovereignty over the region. The pilgrimage howdah involved travelling through the pilgrimage route, and was launched from one of Damascus' mosques with grand celebrations. The previous two factors had a great impact on the urban planning of the city, as we will see, since the concept of pilgrimage rituals was connected to the need to establish grand spacious mosques that were located in places that were suitable for accommodating a large crowd to practice the rituals. They also led to the necessity to place these mosques on the route of the pilgrimage, starting from the gate of the citadel to the south that was in alignment to the western city wall.

Fourthly: Trying to obtain blessing by getting closer to the buildings of their predecessors, who owned the real legitimacy to rule the Islamic State. Since the Mamluks took great care in choosing their buildings sites, the location of the building was seen to be as important as the architectural significance, and possibly more. In his book, Rabbat Nasser Rabbat mentioned that the historians of the Mamluk era did not care about the aesthetic values of the buildings mentioned in their books, but that the Waqf documents were describing the distribution of the internal spaces without describing the ornaments or decorative elements in detail. Besides that, they paid great attention to announcing the location of the building and they mentioned all of the important buildings in the neighbourhood, which clarifies the importance of choosing the buildings' locations.

Damascus was considered to be one of the oldest continuously inhabited cities; the archaeological studies on the old city of Damascus, carried out by Zack, Dorothee, showed that it had been based on perpendicular street planning since the Hellenistic era. This planning started to disappear with the emergence of Islam in Damascus, until it finally disappeared in the Mamluk era and the city became made up of twisted alleys that may end with blocked lanes. Also, the urban architecture extended outside the city walls to several new important places: Sook Saroja in the north, Senjekdar district in the west and Al-Midan in the south. These are the regions that are included in this survey. We are going to study the distribution of the Islamic buildings of mosques and schools in these areas, including the buildings that mentioned in Sauvaget and Zak, D. researches about Damascus including the buildings that reportedly confined at Sauvagetand Dorothee in Damascus. Some of these buildings are still there and will be within the scope of the field study, others have ceased to exist and their descriptions come from books and references.

The field study shows a great diversity in the interior architecture design style; we are going to make a comparison between the distribution of the buildings and the interior architectural style. Thus, we will use examples of the most important buildings, as shown in the attached table (Table 1). These examples were selected because they were built by the sultans, their representatives or their high ranking officials in Damascus. Therefore we could attain results that reflected the thoughts prevailing during the Mamluk era.

On the map (Figure 2), we notice the distribution of mosques and schools in the old city of Damascus, both inside and outside the walls, and the increase in the buildings' density in the north of the Umayyad Mosque area, the area between the castles and the straight street that was named Sook Al-Kmh, as well as on the pilgrimage route, starting from the locality of Al-Senjekdar in the alignment of the city wall and then turning towards the south. We also observe similar density on both sides of Sook Saroja, which runs from west to north-east of the city walls. The attached diagram, (Figure 1), shows the distribution in numbers and its explanation is as follows:

Table 1. Table shows the sample of the most important buildings in the old city of Damascus in chronological order. By the author.

No.	Building	Function	Date	Plan	Site	Main entrance
1	Al-Zaherya	School	676 HA/1277 AD	Complex	North Umayyad mosq.	West
2	Tinkez	Mosque	718 HA/1318 AD	Arcades	West of the old city	South
3	Al-Kremy	Mosque	718 HA/1318 AD	Arcades	Pilgrimage route	East-west
4	Al-Tankezya	School	739 HA	Iwan	South of the citadel	North
5	Yalbuga	Mosque	747 HA/1347 AD	Arcades	West of the old city	E – W – N
6	Al-Afridonya	School	749 HA/1348 AD	Iwan	Pilgrimage route	East
7	Senjekdar	School	749 HA/1348 AD	Complex	Pilgrimage route	East
8	Manjek 1	Mosque	763 HA	Arcades	Pilgrimage route	East-north
9	Moaayad	Mosque	802 HA/1399 AD	Arcades	North of the walls	west
10	Al-Jawzah	Mosque	1401 HA/804	Arcades	Sook Sarouja	East-west
11	Al-Aqsab	Mosque	811 HA/1411 AD	Arcades	Sook Sarouja	North
12	Al-Thekafe	Mosque	811 HA/1411 AD	Complex	East of the walls	West
13	Al-Ekhnaeya	School	820 HA/1417 AD	Complex	North Umayyad mosq.	North
14	Jaqmaqyah	School	824 HA/1422 AD	Complex	North Umayyad mosq.	North
15	Al-Tawrizy	Mosque	825 HA	Complex	West of the old city	North
16	Al-Ward	Mosque	830 HA/1426 AD	Arcades	Sook Sarouja	South
17	Hesham	Mosque	831 HA/1427 AD	–	The Straight street	–
18	Manjek 2	Mosque	835 HA	Arcades	Pilgrimage route	South, north
19	Belban	Mosque	840 HA/1441 AD	–	Sook Sarouja	South
20	Shazebkya	School	857 HA	Iwan	West of the old city	East
21	Al-Moaalaq	Mosque	860 HA	Complex	North of the walls	North
22	Sabounya	School	1457 AD	Complex	Pilgrimage route	East
23	Al-Qaley	Mosque	Late 9th century	–	The Straight street	–
24	Saybaeya	School	921 ha/1415 ad	Complex	Pilgrimage route	East

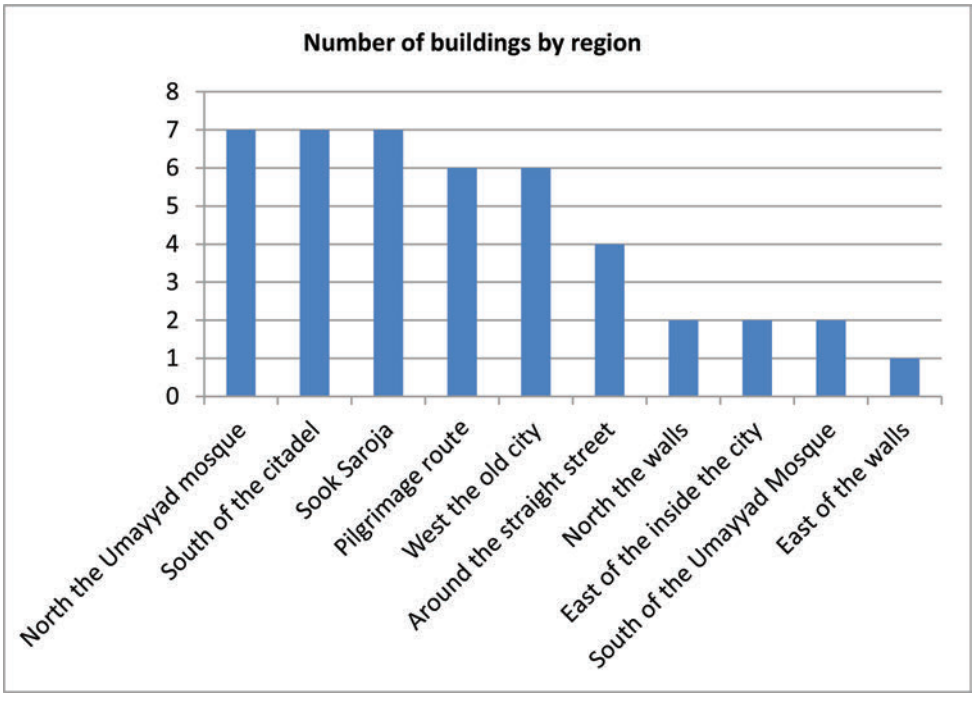

Figure 1. Diagram shows the number of religious buildings according to the regions in the old city of Damascus and the places surrounding it.

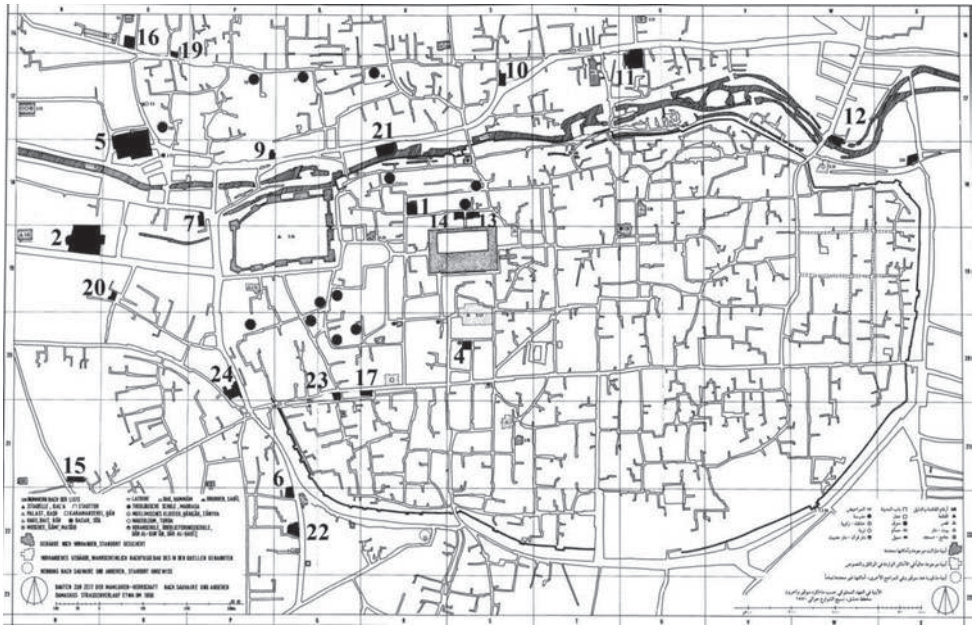

Figure 2. Map of the religious buildings in old Damascus and the area surrounding it—the numbers shown in the map are explained in the following table. The map by Zak, D.

North Umayyad Mosque area: Tracking the construction dates of the most important architectural structures in the attached table, we note that the first thing that was done by Sultan Baybars upon the receipt of power was to create Al-Zaheria, which is a mausoleum and a school, and he chose the site facing in the face of Al-Adelya school because of its religious and political fame, making them complement each other and become counterpart twin buildings, as if they belonged to one architectural unit in which the shrines' domes and entrances corresponded to each other. The southern façade is an extension of the southern façade of Al-Adelya school. Here we should mention that the Ayyubids had set up a number of important buildings adjacent to the north of the Umayyad Mosque, notably the Saladin mausoleum and Al-Rashaeya school. This explains the architectural density in this area, which affirms the previously mentioned desire to have neighbouring buildings next to the buildings of the former legitimate kings. So they built Al-Ekhnaeya School (Figure 4) in the place of the Al-Rashaeya, directly followed by the Al-Jaqmaqyah School (Figure 3) in the place of an old mausoleum. The concept of the twin buildings was repeated once again, as these two schools constituted one architectural unit where the domes and the great entrances of both buildings faced each other.

West of the city: When we trace the historical sequence of buildings in the Mamluk era, we see that the great rulers in the early Mamluk era gave their attention to the construction of great mosques that were miniature copies of the Great Umayyad Mosque. This interest in the tradition of the Umayyad Mosque was not only due to the importance of its architectural and aesthetic values, but also because it represents a symbol of the Sunni group that the Ayyubids and then the Mamluks tried to revive and spread but also for its religious to the Sunni group of Islam that the Ayyubids first and then Mamluks tried to retrieve its control on the Islamic religion and to be related to its Umayyads creators, the previous legitimate rulers. This was achieved by choosing appropriate sites that provided space for such great mosques in the western part of the old city, looking over the branches of Barada's River. In other words, selecting sites, depending on the availability of the necessary landscape area, where the Great Mosques of Tinkyz and Yalbuga and the Shazebkya School (Figure 5) were built.

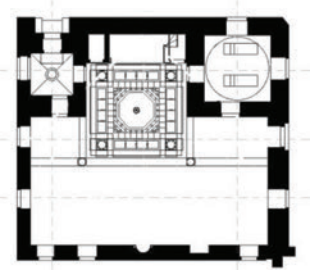

Figure 3. Al-Jaqmaqyah School plan.

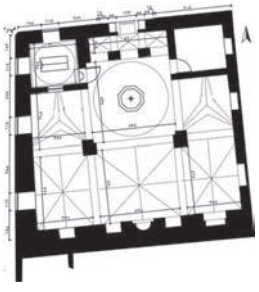

Figure 4. Al-Ekhnaeya School plan.

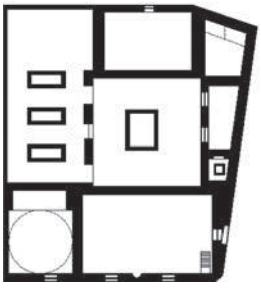

Figure 5. Al-Shazebkya School plan.

Pilgrimage route: Meanwhile, a new and important reason appeared for choosing a site on which to build mosques and schools, and that was the pilgrimage route. Through knowing the ceremonial rituals organised by the Mamluks before the pilgrimage season, we consider that the pilgrimage route started from the Senjekdar district, opposite the castle. It then stretched in alignment to the city wall, where the Afridonia and Alsabonia schools were situated, and then it turned south where the two important mosques, Al-Kremy and Manjek, were built.

The area south of the Castle and north of Sook Al-kamh: We note the density of school buildings in a relatively small space, since this region is one of the most vital areas in the old city of Damascus and is close to the surrounding public markets, such as Sook Al-Kamh in the south and Al-Bzoryah in the east. Most of the schools were built in distant streets, far from the main public streets. This proves that this area was considered to be a residential area and that it contained some of the most important residential buildings, such as the hospital of Al Nouri, the palace of Alsadaa, which was south-west of the castle, and the palace of Dar-Althahab, which was south-east of the Umayyad Mosque. Therefore, many of the rulers and princes had lived in this region reign since the Ayyubid period. Many historical references, such as Al-Nuaimi Al-Noaymy's mention of schools in Damascus, pointed out that many of the rulers and princes had transferred their houses into religious schools after their death. The most famous of which were the Athrawyah School 580 AH and the inner Al-Shamya School 612 AH. As a result, many of the rulers and high ranking men did the same thing during the Mamluk period. Yet, most of these buildings were destroyed and there is no trace left whatsoever, and even their locations were not determined except in the historical researches of Sauvaget and Zack Dorothee.

The area north of the walls (Souk Saroja): When the Burjy Mamluks gained power, they changed the basis on which they chose the sites of the religious buildings. They paid attention to the areas located north of the walls, Sook Saroja and its eastern extension. This was because these regions had reached their constructional completeness in that era and also due to the existence of some significant Ayyubid religious buildings, such as the external Al-Shamya School, Al-Tawba and Al-Aqsab mosques. The former two mosques were built in the style of the Umayyad Mosque; even the remains of Al-Shamya School's arcade shows that this great school was also built in the Umayyad Mosque style. Thus, the remainder of the buildings in this region were an attractive factor in encouraging the residential completion of the Saroja region. As a result, the new religious buildings, such as the mosques of Moaayad, Al-Jawzah, Al-Ward, Belban and Al-Moaalaq, were built on the sides of Saroja's main street.

2 THE IMPACT OF THE URBAN PLANNING ON THE INTERIOR ARCHITECTURE

We conclude from the previous sections that political and religious thoughts were the main inspiration for construction and architectural style in the Mamluk era, in order to attain their political aims, and that this had a great impact on the interior architecture.

Arcades style: In the early part of their rule, the Mamluks decided to build mosques, and they tried to imitate the Umayyad Mosque. They tended to choose wide spaces, far from the crowded old city, and that allowed them to use the style of the opened courtyard surrounded by arcades.

The Mamluks used several ways to imitate the Umayyad Mosque; the most important of these was by using the same plan, thus the mosques were built with an open courtyard, surrounded by four arcades, with the southern one being the largest because it was in the qibla direction. These arcades overlooked the open courtyard from semicircular arches, topped with another row of arched windows. Also they added a nave to the prayer hall of the Al-Kremy and Al-Ward mosques and the minaret was built in the middle of the northern arcade in Tenkiz and Al-Kremy. In addition to that, all the mosques had several entrances, in the north, east and west, which were in the typical style of the Umayyad Mosque.

In this era, it was preferred that schools, which had no less religious or political importance than mosques, should be built near the residential areas for daily use. For this reason, these schools were built both inside and outside the city, to the north and west of the walls.

3 THE IMPACT OF THE LOCATION UPON THE INTERIOR SPACES OF THE SCHOOLS

Firstly, schools of the iwan style: This was the typical plan for schools, which had been adopted since the Ayyubid period; as the qibla direction faced the south, these buildings tended to extend from north to south to the northern south direction. The chosen site should provide enough space to make the qibla iwan the biggest one. We see this in Al-Afridonya (Figure 6) and Shathebkya (Figure 5), where we note that the entrances were put in the eastern façade in both buildings, which is the main façade of the building. As for the location of the mausoleum, this may vary according to the street location; it should be put in one of the corners of the building, so that it could overlook the street. Thus, in Shathebkya, the entrance was put in the south-west corner, as the façade was single and not attached to other buildings. But as Al-Afridonya had only one single façade, the mausoleum was put in the north-east corner so that it could overlook the street. However, the Tenkyz School (Figure 7) was the only remaining one that was built to the iwan plan, located inside the walls of the old city. It seems that the powerful of Tinkes enabled him to build his school in such important site facing Dar al-Thahab palace and inside the walls of the city using the typical plan for schools. It seems, from the early date of the building and the builder Tinkez, Demascus' most powerful ruler-who built his school southern of Dar al-Thahab Palace in the place of the Othman palace of Al-Azem, separated only by a street—it seems that the importance of the school builder helped to offer enough space to be used in the iwan plan inside the walls of the city. The entrance was made to face the north, which is the main façade, in order to overlook the street. This important change in the planning of this building occurred as a result of its site. Also, this school did not have a mausoleum, which was considered to be rare. Other schools had the mausoleums of their builders, unless they were transferred from houses to schools.

Secondly, the complex plan: The most important example is Al-Zaheria School, which was built opposite facing the Adelya School in the Ayyubid period. It contained four iwans, but they were not symmetrical around one axis. In addition, the main entrance opened on to a transverse arcade, and we can clearly note that the arrangement of the interior spaces corresponded to those of the Adelya School, which was considered to be its architectural twin. The entrances were opposite facing each other; moreover, the two domes of the mausoleums were also opposite each other. On the one hand, we can see how the architect was able to adjust the new exterior architectural mass to the older one. On the other hand, the mass of the mausoleum took up a large part of the total space of the building because of the owner's importance. In spite of the Al-Zaheria School's displacement towards the south, the façade looked like a complement of the Adelya School. Thus, the displacement helped to emphasise both domes.

Another important example of twin buildings was Al-Ekhnaeya School (Figure 4) and Al-Jaqmaqyah School (Figure 3). These were built in two very close eras. In the attached pictures, we can see the balance and symmetry of the interior spaces and the courtyards, and the mausoleums mass. Here, we should mention that the courtyard ceiling of the Al-Jaqmaqyah School was covered over in the 20th century, but it had previously been open to the sky. The same is also true of the Al-Ekhnaeya School. Also, the iwans of the Al-Ekhnaeya School were open to the courtyard and they have recently been covered. Furthermore, we can see the symmetry of the prayer halls, whose shape looked like an iwan and an arcade at the same time, as they go around the central courtyard. The only difference we notice is the position of the entrance mass, which was shifted in the Al-Jaqmaqyah School from the middle of the main façade to its west side. The reason for this shift was that the main façade overlooked a narrow street, but the west front overlooked a spacious square. This meant that the entrance was more notable in this position than being in the centre of the façade, because of its height compared to the narrow street.

The complex buildings outside the walls: The most important examples are the mosques of Senjekdar, Al-Tawrizy (Figure 9), and the schools of Sabounya (Figure 8) and Saybaeya (Figure 10). Al-Tawrizy Mosque was built in a residential street in the west of old Damascus. Its first function was intended to be only as a mausoleum, and then it was decided to continue construction to add a mosque to it. Thus, we can find a distinguished design in which

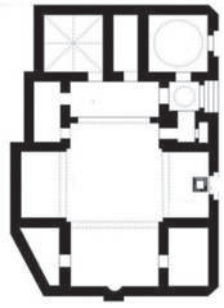

Figure 6. Afridonya School plan.

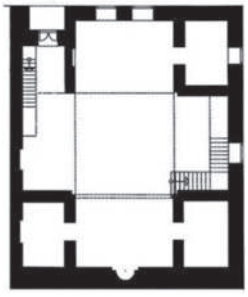

Figure 7. Al-Tankezya plan.

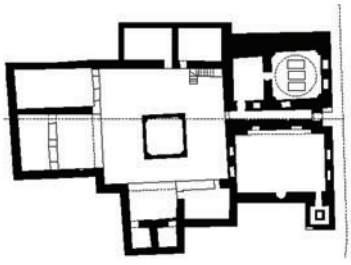

Figure 8. Sabounya plan.

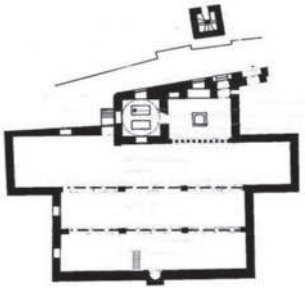

Figure 9. Al-Tawrizy plan.

Figure 10. Saybaeya plan.

the mausoleum was located in the middle of the north façade adjoining a small courtyard. It had two entrances, with the main one located in the west of the northern façade and opening directly on to a transverse arcade, which used to be an open courtyard in the original design. But the main impact of the building site with regards to the interior spaces distribution was that there was no place for the minaret. This led to the minaret being put on the opposite side of the street.

We note here that the arcades were transverse due to the availability of space, where the main axes of the building run from east to west, contrary to the previous examples of the iwans plan. The Sabounya School axes goes from east to west, and we also see the same expansion in the Saybaeya School.

In the previous examples there was a transverse passage going from east to west, dividing the plan into the northern part, containing the mausoleum and other rooms, and the southern part, containing the prayer hall and other rooms and iwans. This passage may lead to another interior open courtyard surrounded by four iwans or arcades. This plan was used in

the schools that were built outside the walls along the pilgrimage route, where there was not enough space to use the iwans plan, and where the building needed to present the dome to the street, as with the Sabounya School, Saybaeya School and Senjekdar. Also, as these buildings were constructed to be schools, there was no need to put the dome in the main axes of the building, as with the mosques with their arcaded plan.

It became popular in Damascus, at that time, to build the minaret above the main entrance, in order to reflect the continuing escalation of the entrance to the sky. That made it close to the dome of the mausoleum in most cases, when the main façade was not that long. But, when the façade was expanded to be very long, such as in the Saybaeya and Sabounya Schools, the minaret was put on the other side of the dome to achieve a balance.

When we compare the position of the mausoleum to the plan, we see that, in the case of the iwan plan, the mausoleum was put in a place that was separated from the mass of the iwans, not in the corners between them. Whereas, in the complex plans, the mausoleum was part of the entire form of the building plan.

4 FINDINGS AND RECOMMENDATIONS

- The urban planning of the old city of Damascus was a result of the political and religious thoughts of the Mamluk rulers, as previously explained.
- At the same time, this distribution of Islamic buildings led to the emergence of new residential regions, such as Saroja.
- The impact of political and religious beliefs on the distribution of the Islamic buildings affected several aspects of the interior architecture of these buildings, which are: choosing an appropriate plan and style for the interior spaces and finding an alternative design for the interior spaces. Thus, the interior architect had the flexibility to change from the original designs of Islamic buildings, according to the construction site.
- The comparative study between the description of the buildings in the historical books and the field study nowadays, showed that the renovation of the ancient buildings in Damascus was not at the required level. A lack of suitable materials and the right construction methods led to the creation of deformed buildings that were unrelated to the old ones and had no aesthetic value.
- The Urban Planning Commission in Damascus must make an effort to preserve the ancient buildings in Damascus by appropriate renovation and reconstruction. It has to create an appropriate urban plan to save the buildings instead of destroying them for the sake of expanding streets, as was undertaken in the middle of the 20th Century by the French architect, Icho Shard.

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Figure 1: Diagram by the author.
Figure 2: The map by Zak, D: "The development and architecture of an Islamic oriental city."
Table 1: The table by the author.
Figure 3: Plan from directorate of the antiquities in Damascus.
Figure 4: From, https://www.arab-ency.com/_/details.artifacts.php?full=1&nid=166851.
Figure 5: https://www.naseemalsham.com.
Figure 6: https://www.facebook.com/pg/مدارس-دمشق-الشام-القديمةMadrasas-in-Damascus-.
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Figure 8: https://www.facebook.com/pg/مدارس-دمشق-الشام-القديمةMadrasas-in-Damascus-.
Figure 9: https://www.facebook.com/pg/مدارس-دمشق-الشام-القديمةMadrasas-in-Damascus-.
Figure 10: https://www.facebook.com/pg/مدارس-دمشق-الشام-القديمةMadrasas-in-Damascus-.


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Usage of Arundo Donax L. as a sustainable material in interior design and architecture

Sarah Noaman
Faculty of Fine Arts Interior Architecture, Alexandria, Egypt

ABSTRACT: Using renewable resources has become a considerable solution for most problems in Egypt nowadays. It plays a role in issues such as energy crises, scarcity of natural resources and climate change. This paper focuses on sustainable transformation by using traditional perennial plants, such as bamboo, Arundo Donax and others, as renewable resources in wood manufacture. Egypt is in critical need of alternative raw materials. Thus, this paper focuses on studying the usage of neglected yet affordable materials, such as Arundo Donax L., in buildings and digital fabrication. Arundo Donax has been cultivated throughout southern Europe, Asia, northern Africa and the Middle East for thousands of years. This paper aims to discuss the use of Arundo Donax, both in its original state and after fabrication, in the context of interior design and architecture.

1 INTRODUCTION

1.1 *Shallow water plants*

They are semi-aquatic plants, similar to the Arundo Donax and bamboo, which grow in humid places, as their growth needs an abundance of water. The amount of water can be determined according to the plant type, facilitating their growth along lakes, streams, drains and wet sites.

1.2 *Arundo Donax (Giant reed)*

Scientifically named Arundo Donax L., this tall perennial cane is also known as the giant reed, Mediterranean reed, Spanish reed, Donax cane, Arundo grass and family Poaceae (Gramineae). Arundo Donax is indigenous to areas surrounding the Mediterranean Sea. It was later cultivated and naturalised in other major continents in regions with warmer climates. Egypt, for instance, is one of the Mediterranean countries where Arundo Donax exists.

1.3 *Plant structure*

The Arundo Donax is a sturdy upright perennial grass species that grows in many clumps. The stems are 3–5 cm in thickness, 30–60 cm long and 2–6 cm broad with tapered tips and hairy tufts at the base. The giant reed has a widespread network of rhizomes under the soil surface, which are 5–30 cm in depth. The stem is a hollow segmented culm that measures from 1 cm to 4 cm in diameter and is able to branch. The culms' walls range from 2 mm to 7 mm in thickness and the internodes can reach 30 cm in length. Under optimal conditions, stems can grow up to 10 cm per day, as it is one of the fastest growing plants.

1.4 *The relationship between Arundo Donax and the surrounding environment*

Arundo Donax is a sustainable plant that causes CO_2 sequestering, soil erosion reduction, water regulation, speedy growth, low use of nutrients and primary energy. Furthermore, the Arundo Donax is an economic plant that is produced locally and, therefore, is of a low cost and creates local jobs and additional income for farmers.

Moreover, this plant resists salinity, humidity and wind pressure due to containing a high percentage of lignin, also known as wood fibres, in the plant tissues. Table 1 lists the mechanical properties of the stem.

Table 1. The mechanical properties of Arundo Donax.

Property	Estimated value
Density	2,295.00 N/m^3
Mean tensile strength	32.17×10^4 N/m^2
Mean bending strength	130.00×10^4 N/m^2
Mean compressive strength	66.50×10^4 N/m^2
Mean bearing strength	26.68×10^4 N/m^2

*Source: Institute of environmental studies and research, Ain Shams University.

2 DIFFERENT USAGES OF ARUNDO DONAX

2.1 *The use of Arundo Donax in Egypt*

Arundo Donax is used locally to make fences, woven baskets and kites. Ancient Egyptians wrapped their dead in the leaves, and used canes to make fishing rods, walking sticks and writing tools. This plant exists in many places in Egypt, as it is one of the Mediterranean countries, as shown in Table 2 below.

Table 2. The existence of giant reed in Egypt governorates.

Governorate*	Places
Cairo	Qubba Palace—Saffron Palace
Giza	Orman Park—Giza Zoo
Alexandria	Rural areas and slums
Sharqiya	
Gharbiyah	13 shares – 15-karat – 95 acres
Dakahlia	Bridges, canals and banks
Monoufia	Bridges, canals and banks
Behera	Bridges, canals and banks
Qalyubiyah	100,000 Inch/Acre
Fayoum	
Suez	Large areas cannot be counted
Port Said	Al Manzalah Lake
Matrouh	Trace amounts at Siwa Oasis

*Source: The centre of progress and development of small industries, Ain Shams University.

2.2 *Usage of Arundo Donax internationally*

- *Energy crops, biofuel and cultivation*

Energy crops are plants that are produced with the sole purpose of using their biomass energy while reducing carbon dioxide emissions. Biofuels, derived from lignocellulose plant

material, represent an important renewable energy alternative to transportation fossil fuels. Stem and rhizome have the ability to sprout after removal from the mother plant and are then used for clonal propagation.

- *Musical instruments*

The cane is rendered into reeds, which are used in the production of clarinets, saxophones, oboes, bassoons, bagpipes, flutes and other woodwind instruments. For example, the ancient end-blown flute, ney (nai), is made from the same reeds.

3 ARUNDO DONAX IN ARCHITECTURE

3.1 *Usage of Arundo Donax as a traditional building material*

Many inherited methods of building rural houses in Egypt using the Arundo Donax exist. The most common building method is the Lattice, or *Chebika* which is named after the method of attaching the rods together. A linkage appears in its construction as an ornamental unit. Since the plant is available locally, it is possible for each resident to build his own house. Similarly, the building process is simple for an unprofessional builder. The building process starts by cutting the reeds, allowing them to dry well, collecting every ten poles in a beam and tying them by simple ropes to form the construction.

3.2 *The walls*

The beams are grouped vertically, placed together in batches and attached to proper ropes. Another layer of beams is then added horizontally and attached to the vertical layer. Then, an inclined layer of reed beams is added in order to strengthen the two perpendicular layers. The height of the wall is 6 metres tall, the room's area is 6*4 m^2 and its height is about 3 to 4 metres tall. These calculations include the part of the wall that is built below ground level to support the building, as shown in Figure 1. The building is insulated by using plastic and stucco, and then piles of rice straw and papyrus are added. Finally, the walls are covered by mud that is mixed with rice straw and hay and painted with lime.

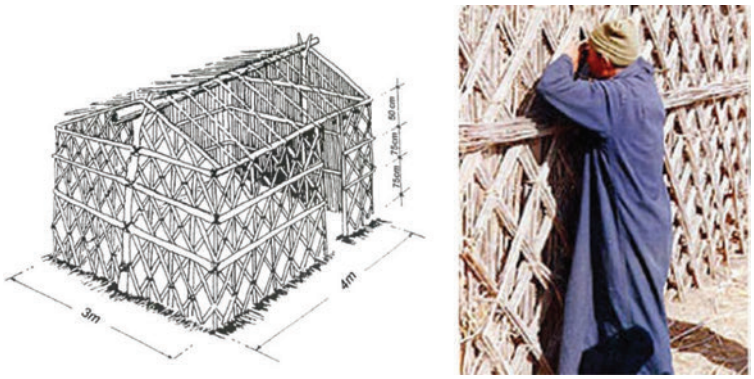

Figure 1. The common method of building in Al Manzalah Lake: Lattice (Chebika).

3.3 *The ceiling*

The ceiling may be built by using the same steps as for the building of the walls or by creating a layer of single rods that are attached to each other and hitched tightly by thin robust ropes. This is specifically applicable along the short side of the room. The second layer is then added perpendicularly to the first one and parallel to the long side of the room. Finally, and to carry the ceiling, camphor wooden poles are used.

3.4 *Disadvantages and solutions*

The main disadvantage of this plant is its flammable nature. It is also difficult to use reeds in constructions that have wide spans and long heights. However, as a solution to its flammable nature, the use of epoxy, which is a mixed fireproof material that is rich with aluminium, stops it from catching fire and is used to cover the outer surface of the plant. Meanwhile, the latter disadvantage could be dealt with by using wooden trusses for a wider span.

3.5 *Advantages*

These houses are suitable for places that have a high temperature, humidity and heavy rains. Economic plants are sold for 35 Egyptian pounds, by the metre squared, in Al Manzalah Lake of Port Said. The plant is suitable for weak clay soil that cannot carry heavy constructions, such as concrete. Soil subsidence causes concrete to collapse, while the lightweight Arundo Donax can be easily carried by the soil. It also facilitates quick construction, so that ten workers can build one hundred housing units in three days. It was used until recently in the making of booths in the markets and for ceiling coverages in the cafes of slums, as shown in Figure 2.

Figure 2. A café whose ceiling is covered by Arundo Donax in the outdoor area, (Middle, Right). A booth in El-Maamora market, (Left). Place: El-Maamora El-Balad, Alexandria, Egypt.

4 ARUNDO DONAX IN INTERIOR ARCHITECTURE

4.1 *Mixing Arundo Donax with natural wood in interior architecture*

Arundo Donax rods are used in interior architecture, furniture design and ceiling cladding, as shown in Figure 3. The reeds are used as appropriate thermal insulators and sound absorbers as they prevent echoes, especially when they are used as an integrated building unit. This is possible by a distortion in the sound waves caused by their bumpy surfaces.

Figure 3. Usage of Arundo Donax in ceiling design supported by natural wood in two different interior spaces.

4.2 *Arundo Donax items in interior design*

The rods are used in the making of decorative interior items and lighting units. The items are produced by forming the proper rods and merging them with other materials, such as fabrics and wood, as in the designs shown in Figure 4.

Figure 4. Arundo Donax decorative and light items, Gift Shop, Alexandria, Egypt.

4.3 *Arundo Donax partitions with metal frames*

This is an experiment to examine the ability of Arundo Donax as thermal insulation. The thickness consists of three partitions. Each partition contains Arundo Donax rods and metal frames with lengths of 2.5, 4 or 5 centimetres, a depth that ranges from 100 or 150 to 200 centimetres and a height of 180, 240 or 260 centimetres. The poles are knitted by galvanised metal wire with a diameter of 2 mm. The two sides of the partition, with a length of 5 centimetres, are covered with a layer of mixed cement and sand with a thickness of 2 centimetres, as shown in Figure 5. Thus, this results in a durability against fire that lasts for half an hour.

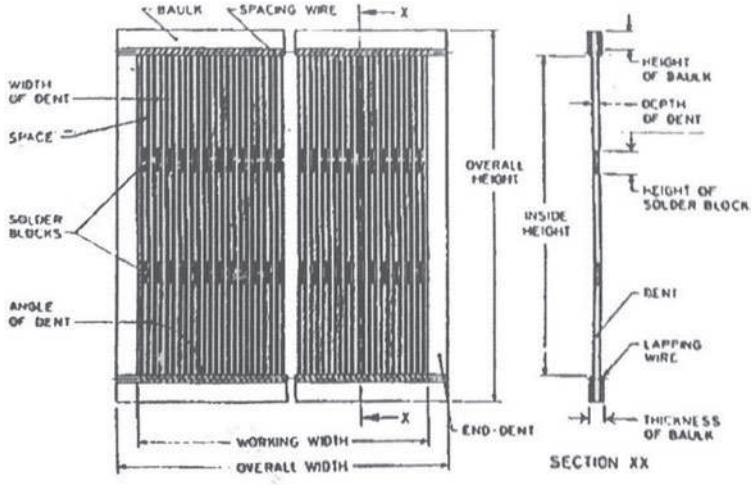

Figure 5. The details of the Arundo Donax partition used to examine combustion and thermal insulation.

5 EXAMPLES OF ARUNDO DONAX ORGANIC STRUCTURES

5.1 *Water universal exhibition*

This pavilion, known as the water university exhibition, was constructed in Zaragoza, Spain back in 2008. It is a shaded structure that allows access to the Pavilion of Citizen Initiatives. The pavilion was designed by Canayaviva in collaboration with the architect, Ricardo Higueras, as shown in Figure 6.

Figure 6. Pictures for the pavilion constructed in Zaragoza, Spain in 2008.

5.2 *Casa de Laila structure*

Another example is the Casa de Laila structure, as shown in Figure 7. It is a multiple use open space that is 9 metres long that was built in the Alhaurín el Grande in Malaga, Spain in 2013. The structure covering is full of canes with mud, lime, hemp and aggregates and was designed by Canayaviva.

Figure 7. Picture of the Casa de Laila structure.

6 ARUNDO DONAX A ZERO WASTE MATERIAL

6.1 *Zero waste*

The GrassRoots Recycling Network (GRRN) defines the zero waste design principle as one that goes beyond recycling, by taking a whole-system approach to the vast flow of resources and waste through human society.

6.2 *Arundo Donax example for zero waste (Radical Ship Pavilion)*

An installation, which resulted from a workshop, was created in September 2016 by the LAN laboratory for natural architecture, within the Festival of Mediterranean Literature, in order to design an intervention of 'Urban Land Art' using natural materials, as shown in Figure 8.

Figure 8. Picture for the Radical Ship.

This structure can be reused by taking the rods and redesigning them in a new way for a new purpose, for example, fences and interior units, such as chairs, tables and lighting units, by using manual or digital construction methods, as shown in Figure 9.

Figure 9. Suggested new forms for the structure.

7 ARUNDO DONAX IN DIGITAL FABRICATION

7.1 *Digital fabrication*

This is a process that uses Computer-Aided Design (CAD) and additive and subtractive manufacturing machines, such as a CNC router, laser cutting and 3D printing, to allow designers to produce material digitally with great accuracy.

7.2 *Applications of Arundo Donax in digital fabrication*

The designs inspired by the pattern are formed when the rods of Arundo Donax are sliced, as shown in Figure 10. The digital method uses Rhino and Grasshopper software and it can be produced by using a CNC mill.

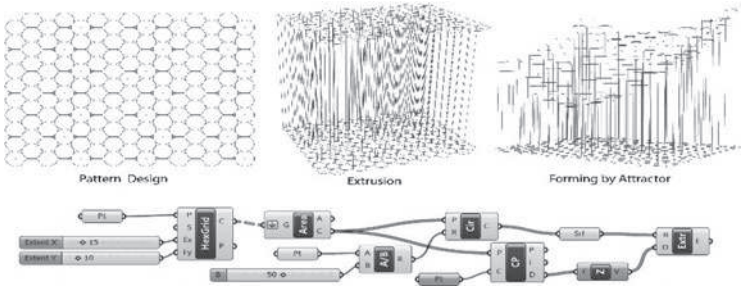

Figure 10. Form developing.

The rods can be linked together with metal connectors or be tangled together using tight ropes. The shape can be used either indoors or outdoors. After developing the form by using Grasshopper, the item can be modified by Rhino, 3Ds Max and other software. To get a suitable design and create a proper environment around it, a rendering of the scene is necessary to observe the overall view, as shown in Figure 11.

Figure 11. The orthogonal projection of the fabricated chair (Left). Final render after editing on 3Ds Max (Right).

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 *Conclusions*

Arundo Donax can be used with other materials, such as natural wood, bamboo and fabricated materials, as a complementary material in the manufacturing process. This shows the importance of improving visual manifestation by searching for the proper methods of treating forms using local materials. Arundo Donax is one of many sustainable solutions that can be used as a thermal insulator. The importance of reforming shallow water plants, such as the Arundo Donax and bamboo, stems from the possibility of its use in interior design and architecture.

8.2 *Recommendations*

Attention must be paid to the digital fabrication methods to find the best ways of implementing modern and parametric designs by using local environmental materials. Proper cultivation of the Arundo Donax by using modern techniques is significant for producing the best types of plants in Egypt. It is essential to implement the proper treatment on the materials and to use them in the manufacture and building processes, especially since such urban fabrication should maintain the identity and nature of these areas.

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Authenticity of the physical environment that influences a sense of place: A qualitative study at Ampel Street Corridor, Surabaya, Indonesia

Dyah Kusuma Wardhani & Astrid Kusumowidagdo
Universitas Ciputra, Surabaya, Indonesia

ABSTRACT: This study aims to explore the physical factors that contribute to the Ampel Street Corridor in Surabaya, Indonesia. Ampel is known as both an historic area and as an area in Surabaya that is inhabited by Arabian communities. The Ampel corridors lead to the centre of activities, the mosque and the tomb of Sunan Ampel, who was the spreader of Islam in Java Island in the 16th century. Qualitative methods of study are used, where the data are collected through focus group discussions. The informants involved are visitors to Ampel. The study reveals that the physical factors that affect the formation of a sense of place for the corridor of the Agung Mosque and and tomb of Raden Rahmat Sunan Ampel are an authentic gate, corridor dimension, commercial space disharmony, the diversity of products and natural lighting. Meanwhile, the physical factors that affect the Ampel Suci Corridor are an authentic gate, ceiling ornament, a connecting road to the settlement, comercial space harmony, artificial lighting and the diversity of product types with religious nuances.

Keywords: physical factors; sense of place; street corridor; commercial retail

1 INTRODUCTION

A place provides a centre for people's activities and culture (Low & Altman, 1992). Quite often a place also gives people the opportunity to be connected with each other, such as with friends and communities. The value of a place can also be related to its history and culture. However, the aforementioned social factors are not mutually exclusive. The physical factors of a place are also important. Physical factors shape a sense of place (Stokols, 1990; Relph, 1976; Norberg-Schulz, 1985; Kusumowidagdo et al., 2013), so that a place will have the qualities of its physical scope.

A sense of place is associated with physical factors, especially in commercial areas. This has been widely researched, for example, in various commercial locations. Several related studies were conducted in the corridors of shopping centres (Kusumowidagdo et al., 2013; Kusumowidagdo et al., 2015), the corridors of commercial areas in Wilaya underground (Zacharias, 2002), the historic commercial neighbourhood (Shamsuddin, & Ujang, 2008), and also in the coffee shops that functions as social gathering places (Waxman, 2006).

This study focuses not only on the areas with commercial attributes, but also on those with historical and religious attributes. The uniqueness and completeness of these attributes means that the research location, Ampel Street Corridor, is a thought-provoking main topic for this study.

As the earliest streets in the city, the traditional shopping streets preserve their character, both physically and socially, through the street activities and the interaction of the people (Shuhana et al., 2004). They are regarded as important in influencing the city's identity and economic vitality. Research regarding a sense of place has identified the importance of a place's attributes and characteristics in the construction of the sense of place and attachment

(Gieryn, 2000; Stedman, 2003). Therefore, the authenticity of the physical factors that influence the sense of place at the Ampel Street Corridor has become the research focus to be studied by the research team.

2 LITERATURE REVIEW

2.1 *Physical factors of a sense of place*

Places are composed of three broad interrelated components that give them meaning: the physical setting, the individual's internal psychological and social processes, and the attributes and activities that are done at the place (Canter, 1977; Relph, 1976; Smaldone et al., 2005; Stedman, 2003; Stokols, 1990). People's experience of a place, the physical forms, activities and meanings combine together to form the sense of place and its character (Montgomery, 1998).

Najafi & Shariff (2011) states that the physical characteristics and the environment relate not just to the setting or order layout of a place, but also contribute to the meaning. The elements, which are proportion, size, scale, distance, ornaments, sounds, temperature, visual variety and colour (Steele, 1981), have contributed to the creation of the feelings of happiness, sadness, In the corridor, the form of tenant space, finishing and proportion influence the sense of place. The dimension of a store, for example, also provides convenient visual effects for the product exploration of both visitors and tenants (Wee & Tong, 2005; Kramer, 2008; Kusumowidagdo et al., 2015). Next, the elements that affect the atmosphere of the corridor are materials, dimensions and finishing. Dimensions, such as the width of the corridor and the size of the space, can also affect the perception of space (Zacharias, 2002; Kusumowidagdo et al., 2015). On the corridor, the materials used for floor finishing and ceilings will also create a certain atmosphere (Baker, 1986; D'Astous, 2000; Kramer, 2008; Kusumowidagdo et al., 2015). In addition to the corridor dimensions, there are booths or retail carts that help to create a creative and dynamic atmosphere, through selling attractive, colourful and seasonal products (Wee & Tong, 2005). In addition to colour, lighting also affects perception (Zacharias, 2002; Kusumowidagdo et al., 2015).

As mentioned in the literature, physical factors contribute to the function of a space, by creating meaning for local people or visitors. Therefore, the legibility of a place, as well as people's satisfaction with it, can be assumed to be influential factors, and hence to have a meaning in shaping a connection between people and place (Hashemnezhad et al., 2013).

2.2 *The concept of traditional streets*

Streets in an urban context are places of economic and social significance. Great cities and places are, in most cases, identified by their main streets and the character of the streets reflects the image of the cities (Bentley et al., 1992). The streets also represent the people's perception of a city's character and identity (Shuhana et al., 2004) due to the bonding developed by the experience. Traditional streets are strongly characterised by the traditional forms of transaction within the old shophouses and the informal vending activities that take place along the streets, while the modern streets concentrate on modern shopping complexes and formal spots for leisure activities. The form and spatial treatment of the shop frontages influences the manner in which the pedestrians engage in the activities and thus either encourages or discourages attachment (Shuhana et al., 2004).

3 PURPOSE

The purpose of this research is to explore the physical factors that shape the sense of place of the Ampel Corridor area as an historic religious site.

Table 1. Question list for focus group discussion participants.

Topic	Research question
Physical factors that shape sense of place	• Why are you interested in this area? • Are you familiar with this area? • What are the physical conditions that characterise this area? • Can you explain that condition?

4 RESEARCH METHOD

This research is qualitative in nature, with observation, documentation and focus group discussion used as the techniques of data collection. Six visitors to the historic Ampel religious site, who share different professional backgrounds, are treated as the informants. The process of holding the focus group was preceded by explaining the aims of the research. In order to streamline the discussion, the participants were firstly asked to write down their personal data as part of the respondents characteristics. Then they proceeded to give their responses to several discussion topics that had been prepared previously. The data obtained from these six respondents are categorised into the following topics:

The researcher analysed the focus group discussion results, at the end of the focus group discussion, the recorded notes were checked and read several times and the important parts were highlighted. The objective was to select phrases containing hidden ideas that would support the research and to compile them.

5 RESEARCH OBJECT

The area of the Ampel corridors is located in an Arabian village in Surabaya, Indonesia. The Ampel Corridor is a term for some of the corridors leading to the complex of the Agung Mosque and the tomb of Sunan Ampel. This area is unique, with its specific setting and atmosphere. The number of ancient buildings, the community of Arabian descendants, and the business area dominated by Arabian goods lead to the uniqueness of this area. This research is limited to two corridors, namely corridor A and corridor B, in which both of them have similar characteristics as commercial spaces, or have commercial enclosures on both sides of the corridor.

6 FINDINGS AND DISCUSSION

The physical factors that create the sense of place of the Ampel Corridor are as follows:

6.1 *Corridor A: Entrance of the Agung Mosque and the tomb of Raden Rahmat Sunan Ampel*

6.1.1 *Authentic gate*

The existence of the gate is a physical marker of the Ampel Corridor, especially at corridor A. The shared understanding about this gate can be found in the discussions, as shown by the following:

> *'Gate is a physical marker for the main entrance of Agung Mosque and the tomb of Raden Rahmat Sunan Ampel religious tour' (F, field supervisor, Sidoarjo)*

6.1.2 *Corridor dimension*

The corridor at Area A has a width of ±3 metres and is used as an entrance and exit for visitors on the religious tour. Its narrow corridor and crowded circulation have marked the

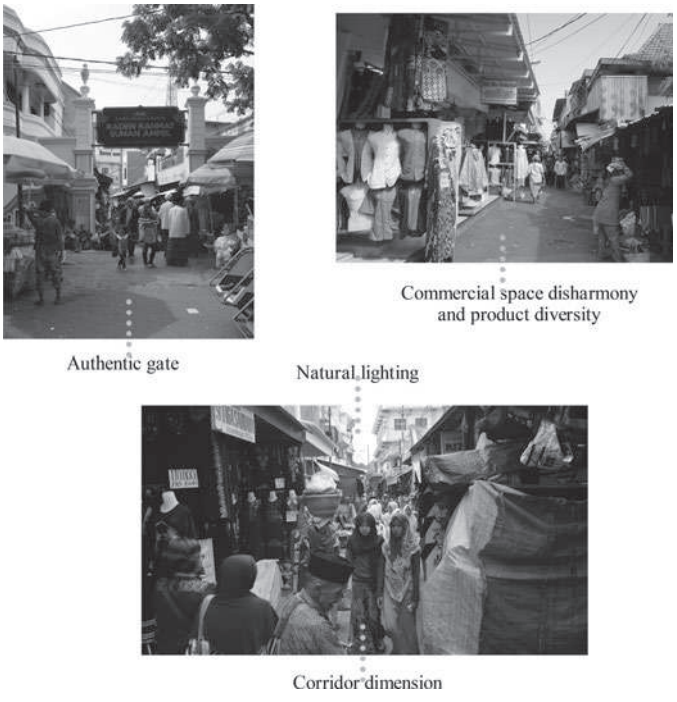

Figure 1. Physical factors of corridor A.

situation of this corridor, and thus it has become a distinctive trait of the Ampel Street Corridor.

> *'The street corridor narrow and its circulation is unclear, since it is used as both entrance and exit for all visitors of religious tour' (D, interior designer, Surabaya)*

As stated by Kusumowidagdo et al. (2015), the dimensions of a corridor can affect comfort, and studying the products available in the area surrounding the corridor can help to define its sense of atmosphere. The importance of the corridor's dimensions is similar to the findings regarding the design features, as studied by Baker (1986), Zacharias (2002), Wee and Tong (2005), as well as Kramer (2008).

6.1.3 *Commercial space disharmony*

This area is a main circulation line leading to the mosque and the tomb of Sunan Ampel, which is why traders use the corridor to sell their goods. The activities range from selling goods in the shophouses to selling goods as street vendors. Uniquely, commercial space disharmony is a chaotic situation that marks the identity of this place, and thus creates the sense of place of the corridor.

> *'The distance between sellers' booths differ to each other. Many sellers use the street to sell their goods hence the corridor is getting crowded' (M, staff, Surabaya)*

> *'This corridor street is main entrance to the Ampel mosque as religious site, and is also close to the bus drop area. That is why many sellers use entrance line to sell their goods' (F, field supervisor, Sidoarjo)*

6.1.4 *Diversity of products*

The goods sold by the sellers in this area are prayer items, date palms and food for the visitors.

'The products sold are praying stuffs, date palm, and many food sellers for the visitors who do religious tour' (D, university student, Surabaya)

6.1.5 *Natural lighting*

Good lighting provides a boost to the spirit when the visitors to this corridor area are conducting their activities. This is why, in the corridor of Area A, the space is open with maximum natural lighting to support the atmosphere of the religious tour activities.

'The atmosphere of religious tour activities is strong, since the street corridor leads to the mosque is open and without canopy' (D, interior designer, Surabaya)

Areni and Kim (1994), Turley and Milliman (2000) and Wee and Tong (2005) state in their studies that appropriate lighting applications are one of the comfort factors of a corridor.

6.2 *Corridor B: Ampel Suci*

6.2.1 *Authentic gate*

Similarly, there is an authentic gate at corridor B. The impressions of the gate are expressed in the following statements:

'The gate is designed and shows that we are in the Ampel area' (M, employee, Surabaya)

'The gate is vintage yet more organized' (N, employee, Surabaya)

6.2.2 *Ceiling ornament*

This corridor is covered by a ceiling. There are patterned ornaments on the ceiling frame, which helps to avoid a monotonous look. The ornaments on the ceiling of the Ampel Suci are of a flowery pattern and are attached to the canopy frame. Furthermore, the ornaments on the ceiling are also in the form of Middle East-style chandeliers at several points.

'The area is more organized with flowery ornaments on the ceiling and middle east-style chandeliers' (D, interior designer, Surabaya)

The ceiling ornaments are important in creating the image and ambiance of the shopping centres (Baker, 1986; Kusumowidagdo et al., 2015).

6.2.3 *Connecting road to the settlement*

There are several methods of access from the corridor of the village to the Ampel Corridor. People can walk through these areas and thus become part of the special identity of this place.

'The atmosphere of Ampel area is stronger, since there are many accesses in this area to the Arab village which is located near the shopping corridor' (S, architect, Surabaya)

6.2.4 *Commercial space harmony*

Ampel Suci is an area specified for shopping. People use the old shophouses and some street vendors use the area near the corridor, yet they do not sell goods in the street, and that is why this area looks neater and appears to be better organised.

'Ampel Suci is a first area that is specified for shopping area, that is why this area is more neat and organized with lighting, canopy, and distance between booths' (F, field supervisor, Surabaya)

Store harmony is one of the elements that are considered to shape the sense of place (Kusumowidagdo et al., 2015).

Figure 2. Physical factors of corridor B.

Figure 3. Physical factors of corridor B.

6.2.5 *Diversity of products*

The products or goods sold in Ampel Suci are mostly prayer items and Arabian souvenirs, as expressed in the following statement:

> *'The products sold in Ampel Suci vary from praying stuffs to Arabian souvenirs' (S, architect, Surabaya)*

The key attractions of the traditional shopping streets are the products offered and the shopping activities that are associated with the different ethnic groups in the city, as claimed by Shamsuddin and Ujang (2008).

6.2.6 *Artificial lighting*

At the area of Gate B, artificial lighting is very dominant in shaping the sense of place, since:

> *'The atmosphere is more closed because of canopy, which is why each old shop house uses artificial lighting to support the lighting' (M, employee, Surabaya)*

In their research, Kusumowidagdo et al. (2015) also claim that lighting is a factor that influences the corridor of the shopping area. This claim supports the research of Baker (1986).

7 CONCLUSION

The traditional shopping streets of Ampel have been important and meaningful for users as places for religious activities, shopping locations and sociocultural diversity, as well as for self and group identity. The physical factors of the area of the Ampel Street Corridor have had an influence on the shaping of the sense of place.

The physical factors that were found in both corridors were the authentic gate and product diversity. At corridor A there are some other distinctive factors, which are natural lighting, corridor dimension and commercial space disharmony. The presence of informal traders on the pavement adds to the diversity of the place and has a significant role in creating a unique atmosphere on the streets. Meanwhile, at Gate B, the distinctive factors are the ceiling ornaments, the connecting roads to the settlement, commercial space harmony and artificial lighting. These physical factors simultaneously shape the sense of place of the Ampel Corridors area.

This research is expected to make a scientific contribution in several areas, including in both academic and practical areas. With regards to the academic aspect, the implementation is expected to become the foundation for further research focusing on a sense of place, commercial street corridors and historical-religious areas. The practical contribution of this research is as a reference for government and urban planners in making and revitalising meaningful urban places.

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Back into the future: The city improvement board of Hyderabad

Anuradha S. Naik
Anuradha Naik Associates, Hyderabad, India

ABSTRACT: The City Improvement Board (CIB) was set up in 1912 by HEH Nawab Sir Mir Osman Ali Khan (1911–1948), the ruler of Hyderabad, the largest princely State in India, with the purpose of developing the city in a holistic manner.

Structured housing schemes, adaptation and re-use of old buildings as well as heritage and water conservation were central to the schemes of the CIB. Specially designated commercial districts were designed; playgrounds and parks were created to bridge economically poorer areas of Hyderabad with newer ones.

The CIB was abolished in 1957, and in the forty-five years of its existence, it changed, along with the skyline of the city, the lives of thousands of its citizens. The positive impact of the work done by the Board is still visible today.

The paper will elucidate some of the key projects of the CIB and also highlight its impact on Hyderabad even today.

Keywords: City Improvement Board; CIB; conservation

1 INTRODUCTION

Hyderabad State located in the Deccan Plateau was the largest of the five hundred and sixty five princely states of India. Covering an area of roughly 215,000 sq.km it was under the domain of the Asaf Jahi Dynasty from 1724 until 1948. Initially as viceroys of the Moghul Emperor, the Nizams, as the Asaf Jah rulers were known, rose to power, claiming independence in 1857, after the fall of Delhi.

The capital of Hyderabad State was also known as Hyderabad, 'the fourth largest city in South Asia during the colonial period' (Beverley, 2015). Founded in 1591 by Mohammed Quli Qutub Shah (1580–1611CE), it was a well-planned city laid out on a double grid system in the form of a giant cross. Over the course of three hundred years Hyderabad evolved with the famous monument, the Charminar at its centre, but the well-designed city had disappeared under the matrix of a complex, dense historic and multi-layered urban setting.

Located to the south of the River Musi, the city had grown in an organic and haphazard fashion and it was unfortunately a cataclysmic flood and an epidemic of the plague that propelled the need to develop and restructure the city at the turn of the 20th century.

1.1 *The floods of 1908*

On 28th of September 1908, the city received 325.12 mm of rain within the first 24 hours and 155 mm in the next (Visvesvaraya, 1909). The discharge rate of water in the swollen river began with an incredible 3115 m^3/sec and soon rose to 12035 m^3/sec. About 20,000 houses were destroyed, 15,000 people perished and at least 30,000 were rendered homeless (Prasad, 1984). The sixth Nizam, Mir Mahbub Ali Khan (1869–1911) opened up his palaces and set up community kitchens for the citizens of Hyderabad. His most lasting contribution was to request Sir Visvesvaraya (1861–1962) to report on steps to be taken to assess the situation and take appropriate measures for the future. Sir Visvesvaraya, an eminent Indian engineer,

scholar and statesman, was then the Chief Engineer of the Public Works Department of Bombay and *Divan* (Minister) of Mysore State. Knighted by King George V for his contributions to public good, he also received the Bharat Ratna, India's highest civilian honour in 1955.

In Hyderabad, Sir Visvesvaraya recommended the construction of two flood catchment reservoirs upstream. He also proposed to strengthen the riverbank along the city and prohibit the construction of houses and dwellings there, instead lining it with boulevards, parks and public buildings. His findings were published in 1909,

> *"The chief aim of the proposals being to provide the most efficient and economical remedy…. By carrying out the works in their entirety a control will be obtained of the river at all times and irrigation will be started on a scale never before attempted in the State. The works will mitigate both floods and famine and will remain an abiding landmark of His Highness' administration" (Visvesvaraya, 1909).*

2 THE FORMATION OF THE CITY IMPROVEMENT BOARD (CIB)

The need for urgent action was reiterated when the plague struck Hyderabad in 1911, and the city lost roughly a hundred thousand residents (Beverley, 2015). The State had a new ruler; HEH Nawab Sir Mir Osman Ali Khan (1911–1948) was the last and most dynamic of the Nizams. He set up the CIB in 1912 with a mandate to improve "the social, moral and physical conditions of the citizens" (Beverley, 2015). Aligning with Sir Visvesvaraya's report which stated that "in carrying out improvements on such a large scale, it would not be right to ignore the artistic, economic and sanitary considerations associated with the proposals" (Visvesvaraya, 1909), over the next four decades following its establishment, the CIB reshaped Hyderabad city, with slums giving way to proper housing, parks and gardens, "the boulevards being the lungs of the City" (Visvesvaraya, 1909). The CIB was to develop the city in a holistic manner with the inclusion of aesthetics, as is evident in the Urdu word for the CIB, the *Araish e Baldia*, which roughly translates to 'the Embellishment of the City'.

Constituted of engineers, planners and horticulturists, the CIB sent its members to study the works of municipal bodies and botanical parks in England, Germany, Italy and the United States. Conversely, the CIB's work also drew the attention of planners in Europe, especially in the period between the wars.

The CIB published annual reports of its work, giving detailed accounts of proposals, completed works and financial statements. The dedication and commitment of the CIB is tangible in these reports, and reflects the general enthusiasm of the populace towards the proposals, and as is discussed below, their very effective results.

2.1 *Setting the stage: Gardens, roads and infrastructure*

The first task the Board took up was to decongest the city. Sir Visvesvaraya's report stated that streets should be "laid out so as to present a pleasing aspect and open to abundance of light and air, houses…constructed with strict attention to health necessities and public standards of beauty, and parks and playgrounds…within easy reach of the largest number of residents"(Visvesvaraya, 1909).

The CIB was to work within the old walled city of Hyderabad and in the suburbs north of the river as well. Large areas near the Hussain Sagar and Mir Alam tanks and swampy water-bodies like Mir Jumla, Afzal Sagar and Masaheba tanks were drained and converted to parks. The combined area of these new parks was roughly 3175 acres. Smaller parks, playgrounds and *maidans* (arenas) were included even within the closely built walled city.

The CIB laid new roads, opened out crowded areas and laid avenues along the riverbanks. Connections to the south of the river were made broader and axially re-aligned. Roads linked railway stations, bus stations and other public transport routes. A river circuit road connecting the two riverbanks with large tree lined boulevards and newly constructed bridges was

completed by 1932 (CIB Report, 1932). The CIB had recommended that an Inner Circular Road of nearly 15 km be constructed to reduce traffic in the centre of the city and an outer concentric Circular Road of nearly 30 km for future expansion. Radial and cross roads were designed to connect centres of business with the new circular roads. Interestingly, the Inner and Outer Ring Road schemes, that were completed as recently as 2012, were envisioned by the CIB, with axial roads, connecting to the concentric circuits. The routes have been modified and enlarged, the Inner Circular or Ring Road, as it is known covering an area of 50 km whereas the eight-lane Outer Ring Road covers an area of approximately 150 km.

The drainage system for Hyderabad was revamped. An underground system was put in place and storm water drains were separated and emptied directly into the River Musi. Feeder channels were constructed to take water away from low-lying areas to prevent stagnation and thereby disease. A new sewerage system and treatment plant was installed and effluents were treated, diluted and used for irrigation.

2.2 *Osmansagar and Himayatsagar reservoirs*

There was a boost to irrigation in areas around the city following the construction of the two reservoirs built to dam the Musi and its tributary the Esi. The most well known of the CIB schemes, the reservoirs were named after the seventh Nizam HEH Nawab Sir Mir Osman Ali Khan and the Heir Apparent HH Nawab Walashan Mir Himayat Ali Khan Azam Jah, the Prince of Berar. With capacities of approximately 160 million m^3 and 120 million m^3 (Bawa, 1984), they were constructed to create a drinking water source for the city in addition to combining irrigation with flood prevention.

2.3 *The 'River district' and the business districts*

The river was dammed within the city limits creating a 5 km long lake. The river district as the embankment in the city limits was named, was to be developed as the main civic centre of Hyderabad. Tree lined avenues; gardens and "good buildings with suitable frontages" were designed so that "the whole of the locality …would … rise in value and importance.… And give dignity to the riverfront"(Visvesvaraya, 1930).

The schemes of the CIB also included carefully planned commercial districts and purpose built bazaars. The Patthergatti arcade (Fig. 1), still amongst the most popular shopping areas in the old city was designed and developed by the CIB. Moazzam Jahi market, another popular landmark of Hyderabad, and perhaps its first shopping mall, was also a part of the CIB's design.

The work was conceived to benefit business communities and to integrate markets into the new urban fabric that was developing. Markets came up in the proximity of residential

Figure 1. The Patthergatti shopping arcade, circa 1934.

areas. Quiet, lesser-known bazaars like the Begum Bazaar Fish Market, sensitively designed to provide a 'home like' environment, were part of the CIB's urban renewal.

An industrial area called Azamabad on an area of 120 acres, east of the Hussainsagar Lake was plotted and allocated to factories for commercial goods like tobacco, silk and matches. As reported in the 1937 annual report, "economic development would also provide Hyderabad with the infrastructure to compete with both British Indian manufacturers and those of Japan even those of Britain itself" (Beverley, 2015).

Soon, another industrial area Sanatnagar was established in 1941, with factories manufacturing various metal works and tools. Other industrial areas located on urban fringes along railway lines were created.

The urban renewal schemes and the construction of an eclectic mix of buildings, form and function were woven together using a common architectural vocabulary. Starting with majestic public buildings commanding the riverfront to the small functional workshops, the works of the CIB are unmistakably recognisable.

2.4 *CIB Architecture: a new identity and skyline for the city*

The High Court of Hyderabad (1916) (Fig. 2) and the City College (1917) were constructed on the south bank of the Musi and the Osmania General Hospital (1925) and the Asafia Library (1932) on the north bank. With the exception of the library, these buildings were designed by the English architect Vincent Esch (1876–1950). Initially categorised as the Indo-Saracenic style, the CIB under the Nizam of Hyderabad was working with a definitive mandate: to draw upon elements from both Hindu and Islamic architecture, creating a unique palate, where aesthetics though important was not the objective. A powerful statement of secularism was the intent. This was a first conscious effort at creating a distinct architectural style. Developed and honed by subsequent designers of the CIB it came to be described as the Osmanian or CIB style. Esch's buildings and those that followed, including the Patthergatti shopping arcade (1930) and the Moazzam Jahi Market (1935), made a conscious effort at incorporating new technology, materials and functions, with architectural influences of over six centuries, from the Kakatiyan through the Qutub Shahi, Moghul and Asaf Jahi forms, and therefore resulting in the eventual emergence of a distinct and recognisable style. Hyderabad's noted historian Dr. Ghulam Yazdani described the style as "modern in conception and planning, yet retaining traditional details based on the old architecture of Hyderabad". (Yazdani, 1944).

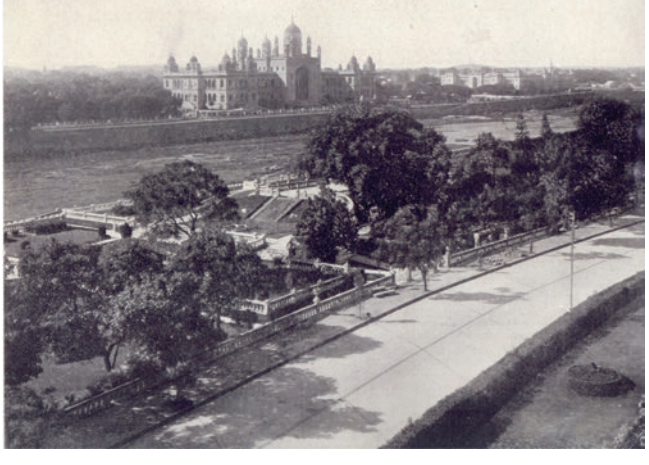

Figure 2. The majestic High Court on the South Bank. Gardens and stone embankment on the north bank visible.

2.5 *Conservation and re-use*

Known landmarks, buildings, other old structures and a significant portion of the City Wall were repaired by the CIB. The original historic gateways like the Delhi *Darwaza*, the Purana Pul *Darwaza* and the Afzal *Darwaza* were restored. Where the wall was damaged beyond repair (along the river front) a road was constructed along its footprint and the wall extended to the riverbank (CIB Report, 1932).

A dilapidated building in the Bashirbagh locality was purchased by the CIB and converted into a guesthouse. " By doing the work economically and taking advantage of the old structure wherever it was good, a decent building has been made which is now worth about double of what has been spent over it" (CIB Report, 1932). (Fig. 3(a) and Fig. 3(b)) Interestingly, adaptive re-use is a term put forth in more recent times in terms of sustainable building.

2.6 *Slum clearance and re-housing*

The largest and most significant of the CIB's work was the clearance of slums and re-housing of people across the city. To adjust urban densities, the CIB acquired any adjoining open lands including reclaimed land from tanks, agricultural tracts in the city and part of the *Sarf-e-Khas* (Crown Lands), where possible. These were built upon first with all infrastructure and amenities and then gradually the slums demolished and residents re-housed. The reason for this is clearly stated.

Figure 3(a). The Bashirbagh guest house before intervention.

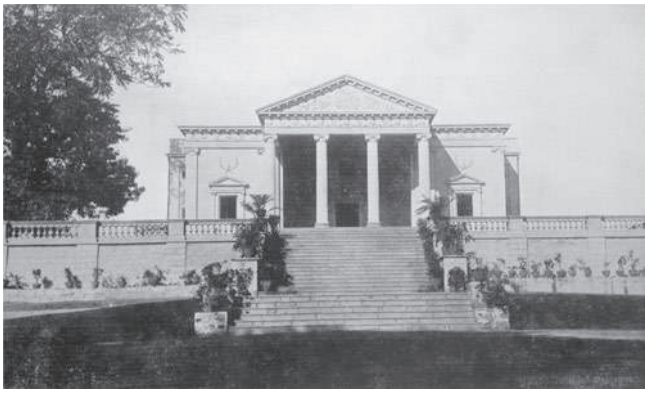

Figure 3(b). The Bashirbagh guest house after intervention.

"It was observed that the slum dwellers that were dis-housed, formed fresh slums in open localities. With a view to check this tendency and to safeguard their health and indirectly the health of the whole population of the city, the Government decided to construct sanitary houses on low rents to house such people. Open lands available round about the city were acquired and construction of buildings was started." (CIB, 1937).

The policy of the CIB was to retain the *pucca* (permanent or strong) houses and then overlay a scheme to build over the remaining land after the demolition of the *kuccha* (huts or temporary) houses. The overlay implemented by the CIB used only 60% of the area for building, with a clear mandate to build only on two-thirds of each individual plot, leaving a third open "for promoting healthy conditions of the locality" (CIB Report, 1932). The remaining 40% was taken up by roads, playgrounds and *maidans* (Fig. 4).

The localities designed by the CIB were functional and robust, designed in traditional Hyderabadi vocabulary and finished with a flourish of the Art Deco, then in vogue. Houses of various grades were designed to accommodate citizens of all strata of society, so as not to create a class-specific locality. The need for the outdoors, fresh-air, playgrounds and parks was recognised and every planned locality had considerable space for children. Public health care, particularly of children was paramount to the CIB's role and infant welfare centres were set up in the old city (Fig. 5).

True to the spirit of the CIB, the focus was not on individual homes but on the community, from the '*chabuttaras*' (outdoor seating platforms) outside the homes to the playgrounds, parks and reading rooms around which the houses were ribboned. The individual units themselves were constructed in the traditional Indian style, complete with a courtyard and fruit trees, separate *mardana* and *zenana* entrances, for male and female family members and visitors.

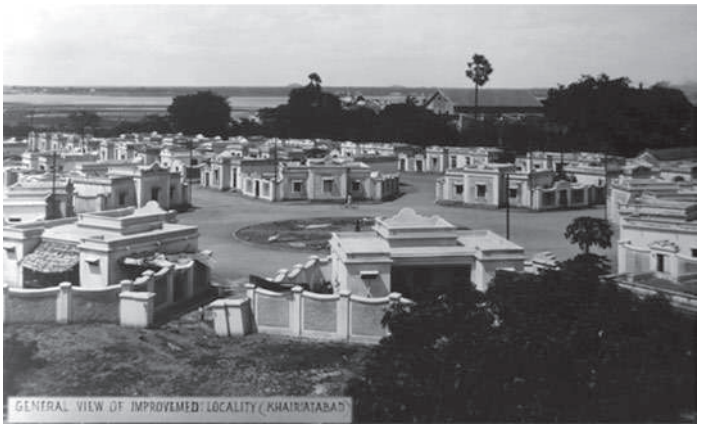

Figure 4. The Khairatabad housing scheme, soon after completion. Circa 1933.

Figure 5. The Azampura playgrounds.

Four types of low rent houses were constructed. Type A had an area of 160 m^2 with four rooms including two bedrooms, and an enclosed courtyard. Type B had an area of 90 m^2 with three rooms in an enclosed courtyard. Type C of an area of 55 m^2 consisting of two rooms and a kitchen in an enclosed courtyard and type D with an area of 22 m^2 and one room and a kitchen, with detached toilets provided by the CIB free of rent (CIB Reports, 1933–34 & 1939–40).

The CIB began its work in Nampally, where the epidemic of the plague had struck. Slums had sprung up in the small area between the modern development of the Hyderabad Railway Station and the old medieval quarter of shrines, mosques and the tombs of saints. Land was of prime value and open areas like parks could not be provided due to the density of the urban fabric. Instead, public facilities like a hospital and school were designed and constructed.

The Nampally scheme was extended to the north by the Red Hills locality and on the south to Aghapura and they were connected by constructing a network of roads. To the west of Nampally, the open grounds, swampy marshland around the Afzal Sagar tank and some cultivable lands were taken over to create and construct Mallepally, linking the various localities to become a part of the whole development of the city. This scheme was built around playgrounds. The concept of the traditional Hyderabadi home was taken a step further. Only, at Mallepally, the 'courtyard' was the football ground. Mothers could send their children out to play while keeping a watch from their homes. Many sports figures of India coming from Hyderabad are from the Mallepally area. The probable reason behind this is that the area has eight playgrounds, which have surprisingly survived a hundred years of change. The grounds were used mainly for volleyball and football, although cricket later came to be played in a few of them.. Football thrived in Mallepally, and the neighbourhood produced five international players, four Olympians and eleven national players (Survey by author, 2013).

In the old city, an open tract of land known as Musallam Jung gardens was partly taken over to design a new locality known as Azampura. Another locality Malakpet was constructed across the railway line from Azampura. Playgrounds, tennis and badminton courts and a children's park were provided as part of the scheme. The reports include aesthetic value on a par with economic and technical details. The 1932 Report describes the Musallam Jung Garden scheme: 'it gives a very pleasing impression to travellers entering Hyderabad by the Meter Gauge line" (CIB Report, 1932).

In the densely populated walled city, localities like Moghalpura (60 houses) and Bazaar e Nurul Omara (101 houses) a relatively low number of houses were constructed, even though the demand was high. This was because of the high land value and lack of open and available space since the nobility of Hyderabad and well to do tradesmen still resided in the old city at the turn of the 20th century.

The social cause and the moral obligation that the CIB took upon itself is evident in the work it did in settling up a colony known as the Dabirpura Temperance Colony. This was established for those who had pledged to abstain from drinking and was supported by donations from local wealthy traders who funded the community halls and spaces (CIB Report, 1934).

While the houses were originally to be rented or leased from the CIB, schemes were set up for residents to purchase the houses from the government by paying interest free installments (CIB Report, 1939). The CIB continued to work until 1957. The Housing Division was merged with the Andhra Pradesh Housing Board in 1960. In its forty-five years of existence it had built 3319 houses in thoughtfully designed localities in Hyderabad (Bawa, 1984).

3 CONCLUSION

For nearly half a century after it was set up, the CIB worked zealously in accomplishing the works set out in the plans proposed by Sir Visvesvaraya.

The impact of these works is still visible in Hyderabad a hundred years later. The Osmansagar and Himayatsagar reservoirs continue to provide drinking water to Hyderabad's ten

million residents and the part of Hyderabad dealt with by the CIB has not faced inundation by floods in the past century.

Sadly, in Hyderabad, the recognition and understanding of these efforts have been lost under decades of new urban planning and the city's rapid growth into a metropolis. One of the reasons could be the abrupt disbanding of the CIB in 1957, soon after Indian Independence.

The riverfront buildings still dominate the skyline along the river. The potential of the riverfront however, lies forgotten. Re-visiting Visvesvaraya's original layout, restoring as much as is possible and intervening where necessary would bring back to the city, its original centre and re-connect the south to the 'modern' northern bank.

As demonstrated by the CIB example, integrated housing will always be relevant, especially in the urban context. It is worth mentioning here that the individual units designed by the CIB were made of local building material and also reflected and accommodated for an Indian lifestyle, making them popular and successful. Water conservation and harvesting were concepts the CIB had addressed at a time when it was an option, and not a necessity.

The majority of the work the CIB undertook was in the period between the two wars, a time when countries especially in Europe underwent drastic re-building, slum clearance and infrastructure management as they grappled with internal issues of unemployment and poverty. Its work attracted the attention of planners and designers globally. One such planer was BS Townroe from England who published an article in the Asiatic Review Journal in July 1934.

In his article, "Town Planning: An Indian Example," Townroe compares the CIB schemes to planning schemes in Britain, which "remained as 'castles in the clouds'", whereas Hyderabad "is to be congratulated on possessing both the means and the will to translate ideas into action." (Townroe, 1934).

To conclude by quoting Townroe

> *"In spite of difficulties peculiar to India, the beauties of this Indian city must stimulate the imagination…. It is…" a well laid out capital adorned with treasures of architecture, well provided with open spaces and planned so as to secure increased health and contentment for coming generations" (Townroe, 1934).*

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Drama as a conservation tool for architectural heritage

Sara Sabahy
Faculty of Arts and Design, October University for Modern Science and Arts, Giza, Egypt

ABSTRACT: Heritage buildings often face many problems, such as omission and the threat of being erased from the memory and concern of the community. In this paper, the researcher introduces drama as a conservation tool, which helps to document heritage buildings and heritage sites by showing them to a large number of people. If these buildings are used in movies then they will be seen for generations to come. This would also help to increase the number of people who know and care about their heritage, increase the number of visitors to these buildings and, therefore, increase the income produced, which can then be used for conserving these buildings.

Keywords: Architecture; Conservation; Drama; Heritage

1 INTRODUCTION

Our heritage is diverse and includes buildings, monuments, gardens, cemeteries, landscapes and archaeological sites. Each of these places contain elements that help to tell its own individual story. The conservation of built heritage is generally perceived to be in the long-term interest of society. This can be better understood if it is categorised under 'economic', 'cultural' and 'environmental' interest, although they are not mutually exclusive and, indeed, they are often interlocked (CPWD, 2013).

Cinema is basically an exercise in communication and architecture is one of the tools employed by film makers in order to communicate.While architecture contributes to cinema, cinema also contributes to architecture. Carl Dreyer argued that the cinema's closest relative is architecture (Thiruvananthapuram, 2011). In the cinema, architecture appears as a background to the scene and as a background to the action (Mateo, 2012). Architecture, whether in the foreground or background, is an intrinsic part of any film, and cinema holds a position as a transformative reference in contemporary architecture (Kacmazerk, 2009).

2 IMPORTANCE OF PLACE IN CINEMATIC SCENES

The first truth in cinema is the place, which is indispensable to the level of the film, scene or cinematic snapshot and which cannot be discharged from spatial content (Yahia, 2007). The place in cinema has a powerful influence on a dramatic scene, one that is as great as the action and the character (Abdel-Aziz, 1994). The place is a distinct personality that has physical, social and psychological dimensions. The physical dimensions are in the form of the architectural place, geographical location and architectural qualities, which have a unique effect. The social dimension is the social level of the place and the relationships that are created between the palce and the film charecters. The psychological dimension is represented in the interaction between the place and the film charecters.

The director should choose the place very carefully in order to achieve the required dramatic effect, whether this choice of place already naturally exists or is built specifically for the purpose of the film. For example, in the Egyptian film 'Life or Death', the director Kamal Sheikh took advantage of the place (the streets of Cairo in the 1950s) to create a dramatic

Figure 1. Two scenes from the Arabic movie 'Life or Death' showing Cairo streets in 1950s (Lotus Film & El Sheikh, 1954).

Figure 2. Two scenes from 'The Mummy' Movie (Cairo cinema production company & Abdel-Salam, 1969).

atmosphere full of suspense, and also to make this film a real record of the Cairo streets at that time that can still be referenced (Yahia, 2007).

In Egyptian cinema, one of the most famous examples of movies that could be considered as a model on the forming level is 'The Mummy', directed by Shadi Abdel Salam, a movie in which every shot is a great composition.

In order to study the relationship between drama and the conservation of heritage buildings, the research will start by defining drama, conservation, historical and heritage sites. A case study will then be used, by taking screen shots from different movies that show heritage sites.

Drama is the specific mode of fiction represented in performance (Elam, 1980). The term 'drama' comes from a Greek word meaning 'action'.

Conservation means all the processes of looking after a place so as to retain its historical, architectural, aesthetic and/or cultural significance and includes maintenance, preservation, restoration, reconstruction and adoption, or a combination of these things (CPWD, 2013).

A historical or heritage site is an official location where pieces of political, military, cultural or social history have been preserved due to their cultural heritage value. Historical sites are usually protected by law, and many have been recognised with official national historic site status. A historical site might be any building, landscape, site or structure that is of local, regional or national significance (Alderson, 1985).

3 CASE STUDY

In the case study, the researcher focused on movies that have shown world heritage sites in Egypt in their scenes or on their posters. Screen shots were taken from these movies to show the appearance of these heritage sites.

According to the UNESCO website, there are seven Egyptian sites that are inscribed on the World Heritage List, which are: Abu Mena (1979), Ancient Thebes with its Necropolis (1979), Historic Cairo (1979), Memphis and its Necropolis—the Pyramid Fields from Giza to Dahshur (1979), Nubian Monuments from Abu Simbel to Philae (1979), Saint Catherine Area (2002) and Wadi Al-Hitan (Whale Valley) (2005). All of them are considered to be cultural world heritage sites, except for Wadi Al-Hitan, which is considered to be a natural world heritage site.

First, examples from movies that showed parts of the world heritage site Pyramid Fields from Giza to Dahshur, as shown in Table 1, the researcher chose to view samples from movies that had shown the pyramids of Giza. The chosen samples indicated the appearance of this site in the poster for the international movie 'Jumper', the animated international movie 'Despicable Me' and local Egyptian movie 'Miss Sugar'.

Second, examples from movies that showed parts of the world heritage site Historic Cairo, as shown in Table 2, the researcher chose to view samples from movies that had shown parts of historic Cairo. The chosen samples indicated the appearance of this site in the international movie 'The Spy Who Loved Me' and local Egyptian movie 'Assal Eswed'.

Third, examples from movies that showed parts of the world heritage site Ancient Thebes with its Necropolis, as shown in Table 3.

Table 1. Movies that showed Pyramids.

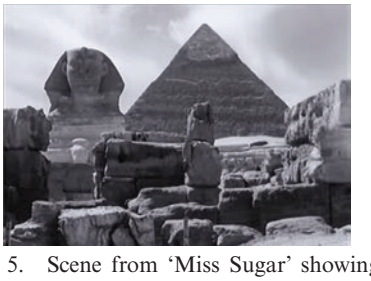
No.	Movie information	Movie scene
1	Movie name: Jumper Production year: 2008 Director: Doug Liman Movie type: Action, Adventure, Sci-Fi Language: English	 Figure 3. Poster of 'Jumper' showing the pyramids of Giza and the Sphinx (IMP, 2008).
2	Movie name: Despicable Me Production year: 2010 Director: Pierre Coffin and Chris Renaud Movie type: 3D computer-animated comedy film. Language: English	 Figure 4. Scene from 'Despicable Me' showing the pyramids of Giza (Meledandri, Cohen, Healy, Coffin, & Renaud, 2010).
3	Movie name: Miss Sugar Production year: 1960 Director: El Saied Bedir Movie type: Comedy Language: Arabic	 Figure 5. Scene from 'Miss Sugar' showing the pyramids of Giza and the Sphinx (AlMansora Movies & Bedir, 1960).

Table 2. Movies that showed historic Cairo.

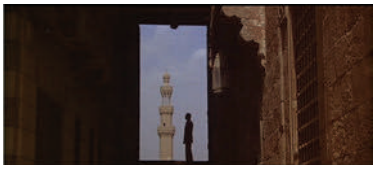
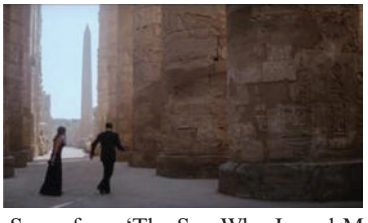
No.	Movie information	Movie scene
1	Movie name: The Spy Who Loved Me Production year: 1977 Director: Lewis Gilbert Movie type: Action Language: English	 Figure 6. Scene from 'The Spy Who Loved Me' showing part of Islamic Cairo (Broccoli & Gilbert, 1977).
2	Movie name: Assal Eswed Production year: 2010 Director: Khaled Marei Movie type: Comedy Language: Arabic	 Figure 7. Scene from 'Assal Eswed' showing Al-Hakim bi-Amr Allah Mosque (Albatrous film production & Marei, 2010).

Table 3. Movies that showed Ancient Thebes with its Necropolis.

No.	Movie information	Movie scene
1	Movie name: The Spy Who Loved Me Production year: 1977 Director: Lewis Gilbert Movie type: Action Language: English	 Figure 8. Scene from 'The Spy Who Loved Me' showing part of Karnak temple (Broccoli & Gilbert, 1977).
2	Movie name: Nile Bride Production year: 1963 Director: Fateen Abdel-Wahab Movie type: Comedy Language: Arabic	 Figure 9. Scene from 'Nile Bride' showing part of Karnak temple (Nagib, & Abdel wahab, 1963).

As shown in Table 3, the researcher chose to view samples from movies that had shown parts of Ancient Thebes, specifically Karnak temple. The chosen samples indicated the appearance of this site in the international movie 'The Spy Who Loved Me' and local Egyptian movie 'Nile Bride'.

Through the previous examples, the researcher showed how a movie scene could capture and preserve the state of a heritage site.

4 CONCLUSION

The researcher started by showing the importance of place in cinematic shots through the literature review. A case study sample of movies that had captured Egyptian world heritage sites in their scenes was also given, in order to prove that movie makers already consider using these sites as background scenery for their shots.

Through these examples the researcher wanted to study the effect of choosing these heritage sites on both the movie and on the site itself.

With regards to the benefits for the movie, the directors chose these sites because they suited the movie's story. On the other hand, there were also useful benefits for the heritage sites that were captured in these movies, as it is considered as a way of documentaion for these sites. Also, by using the same building as background scenery in different movies and in different eras, this gives us the opportunity to study and document the changes that happened to these heritage sites over time.

However, this is not the only benefit. We should also consider that, by showing these sites to the movie's audience, these sites will remain in their memory and they may feel curious enough to visit and explore them. So we can consider these movies to be a good marketing method that can be used to attract visitors from all over the world and to achieve economic benefits that could be used in the conservation process.

5 RECOMMENDATIONS

The film makers should be more aware when making their choice of place, by taking into consideration the effects of using the heritage building or site in their scenes, not only on the movie's story but also on the building or site itself.

There should be regulations that protect the heritage sites from any damage during the moviemaking process.

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Human response and the complex city scene

Tanisha Dutta & V.S. Adane
Visvesvaraya National Institute of Technology, Nagpur, India

ABSTRACT: The city is a scene, representing life's various facets in all its glory, comprising its physical and subtle elements. This paper draws attention to the similarities and differences in the scenes of historic monuments and cities. It is a comparison between the qualities and characteristics of an architectural masterpiece—Kandariya Mahadev Temple, Khajuraho—and a city as a scene. Such a comparison shall help to understand the essential qualities of interactive cities as compared to communicative architecture.

It is concluded that, just as a painting or any other piece of art, demands a response, so do these higher-order arts i.e. architecture, which generate higher-order complex responses. These responses then become part of the scene and interact to make the scenes more intricate, providing us with a complex manifestation of our behaviour and thoughts.

Keywords: historic monuments; historic cities; Kandariya Mahadev Temple; Khajuraho; city as a scene

1 INTRODUCTION

1.1 *Interactive cities and communicative architecture*

Our cities are an agglomeration of various scenes, as perceived by the residents, heuristically creating a complex 'whole' in the mind of the experiencer. Similarly, highly complex pieces of architecture generate comparable cognitive processes in the mind of the visitor. The vast dissimilarity between these scales impact differently, but nonetheless have similarities which are elaborated upon later. This paper will therefore, focus on the similarities of the cognitive heuristics of these physical environments.

Interactive cities talk about the digitisation of various basic necessities of a city or neighbourhood and the interaction within communities to help build a social whole. But the term 'interactive' etymologically signifies the reaction of people residing in or visiting a city, and the city's reaction towards them. The way a city or a cohesive region redefines itself with changing population, changing needs of the people, and their complex reactions that reflect the intricate social fabric, culture and thoughts of the people, is through interaction.

In an essay by Sam Jacob (2017), architect and director of a London-based architectural company, he beautifully describes communicative architecture as another form of cultural practice and a form of media. Its literal media may be the material it specifies: brick, stone, glass steel, concrete or any other. But it becomes a medium in and of itself through the way it arranges these materials. The arrangement of these materials into form and space turn them, like the arrangement of words on a page, pixels on a screen, or paint onto canvas, into information. We can think of architecture then, as a concentration of information assembled into built form. This elementary introduction to communicative architecture helps one to recognise the impact of Hindu temple architecture upon its visitors, as it packs immense symbolic and metaphorical information on its façades.

It is acknowledged that architecture forms a part of the city scene, but due to its sheer scale, its impact is magnified. Just as social media documents cater to the physical needs of the population by documenting reactions of the public, the interactive dialogue between a piece

of architecture and its visitor satisfies an intellectual and psychological need. In a temple, architecture becomes the vehicle of content, and therefore meaning, in all its presentations. As Juan Pablo Bonta and Ludwig Wittgenstein (2006) rightly stated, architecture should not be studied for its meaning, but for its meanings. Having said that, it becomes imperative to mention the areas which describe the foundations of Hindu temple architecture.

As Khajuraho is a small town, sustaining itself through the influx of tourists, it does not exhibit the complexities of a city (by definition). like streets' network, public spaces, landscapes and buildings. The city scene compared to Khajuraho Temple is a conceptual one which historically and theoretically is in sync with the temple concept. This paper, therefore, shows a balance and coordination between traditional ideas governing architecture and conglomeration design alike.

1.2 *Methodology of study*

Table 1. Methodology of study.

Methodology	
Study the outline of the Hindu temple concept.	
Study the outline of the traditional conglomeration or city design theory in India.	
Study the detail of Kandariya Mahadev Temple as an example.	
Compare the theories of temple architecture and city design conceptually.	
Discuss	How temples are a reflection of society.
	The relationship of temple architecture to a city scene.
	The human response and thought process.
Conclusions.	

1.3 *Highlights of hindu temple architecture*

It is significant that nowhere in the extensive vocabulary of the Indian languages is there a term that corresponds to the term 'religion' – in fact, religious and non-religious matters are never distinguished in Hinduism as it is unimaginable that any activity, impulse or process, can be without some divine potential. The *Rig Veda* used a subtle system of symbolism so that in later Indian thought its meaning was always open to interpretation at several levels (Michell, 1988).

The role of the Hindu artist was to give visible form to the values of their society, rather than to communicate a personal interpretation of these values. In order that certain theological ideas should be translated into art, particularly in the fashioning of sacred images, the priests set out elaborate prescriptions which governed all the details (Michell, 1988). The survey of the artistic activities of about 1,500 years uncovers a consistency in the depiction of these manifold personalities, and this visual coherence is seen in the written canon followed by sculptors and painters. The image making norms in the *Puranas* and *Agamas*, as well as the *Vishnudharmottara Purana*, guided artists to work according to strictly defined rules.

The rituals and ceremonies that lie at the very core of the religious life of Hinduism, as well as the more elusive ideas and beliefs that accompany divine patronages, have fundamentally influenced temple architecture (Michell, 1988). But the rituals are a much later addition to the religious activity and the higher spirit of temple construction remains metaphysical.

1.4 *Highlights of symbolic inferences related to hinduism*

The philosophy of Hinduism generally lies beyond the visual realm of art and architecture. In temple sculptures, divinity appears in inexhaustible range of aspects and emanations testifying more to the imaginative potentiality of literary iconographic sources than to the liturgical requirements of worship (Michell, 2000).

Sentences and pictures are concrete representations, but they do not represent inherently. They have power to represent only derivatively, deriving of the states of mind of thinkers who use them. To understand why these things are representations, we need to appeal to the thoughts, intensions, plans and desires of thinkers—their intentional states. Object does not mean thing or entity. Rather, to say that something is an intentional object is just to say that it is an object of thought for a subject (Crane, 2001). An important consequence of the cosmological valence of symbolism is the creation of a person who understands symbols, not only opens himself to the objective world, but at the same time succeeds in leaving his unique condition, acceding to a comprehension of the universal (Crane, 2001). Consequently, 'to live' a symbol and to decipher the messages correctly is equivalent to gaining access to the universal (Eliade, 1985).

It is important to understand that a symbol makes a concrete object 'explode' by disclosing dimensions which are not given in immediate experience. Also, a symbol explodes a particular condition by revealing it as exemplary, that is, i.e. it is indefinitely repeated in multiple and varied contexts (Eliade, 1985). This concept is of immense importance in this context as the symbolism and metaphors in temples pave the way for further imagination; well beyond the physical manifestation; to understand the non-physical aspects of spiritualism. To further enhance the imaginative capacity of visitors, 'The Indian artist imitated the gesture of nature and created on his own account, using a different space and different forms from natural ones' (Eliade, 1985). Therefore, it is clear that Indian classical art does not create works of art, but spiritual models, images to be interiorised through meditation; its action upon man does not conduce to aesthetic feeling, but to a sentiment of reconciliation and perfection, the point of departure for a spiritual ascent which far transcends profane art (Eliade, 1985).

2 CASE STUDY—KANDARIYA MAHADEV TEMPLE AND THE CITY SCENE

2.1 *Kandariya Mahadev temple: Concept and theory*

The name of Khajuraho is derived from the ancient Sanskrit word of *Kharjuravahaka* (*Kharjur,* meaning date palm) and is situated in the state of Madhya Pradesh in the district of Chattarpur. Arguably one of the most popular and frequented tourist destinations in India, Khajuraho has the largest congregation of temples both from Hindu and Jain religious beliefs. The Khajuraho group of monuments was declared a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site in 1986. The temples of Khajuraho in Madhya Pradesh exemplify the technical and stylistic accomplishments of the era – 10th to 13th century – Madhya Pradesh under Chandela and Parmar dynasties.

Figure 1. Mountain view of Kandariya Mahadev temple with cave-like entrance visible.

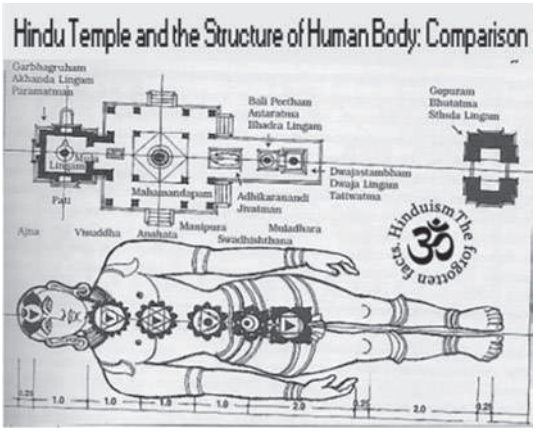

Figure 2. The temple plan depicted as a human body (Mariappan, 2016).

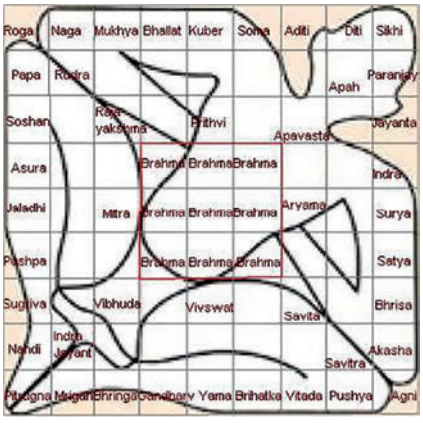

Figure 3. The *Vastu Purusha Mandala* – the basis of ground plan for temple architecture as well as city design (Astrojyoti, 2017).

The Kandariya Mahadev Temple was erected during the reign of King Vidyadhar (1004–1035 AD). This cave-like temple gets its name from the word *kandara* (meaning caves) and it is the tallest of all the temples at Khajuraho, with a height of 30.5 m and a width of 20 m. It was built circa 1030 and is the largest and most magnificent temple in Khajuraho. The elegant proportions of this building and its sculptural detailing are the most refined examples of artistic heritage in central India, towering to a height of 35.3 meters.

These temples are made mostly of yellow and pink sandstone, though in places, pale buff and brown sandstone has also been used together with granite. It is well known that sandstone is a soft stone and, therefore, is more amenable to carving. The temples of Chitragupta, Jagadamba and Laxmana are known for their grandeur; however, the sculpture attains its zenith in Kandariya Mahadev Temple. Distinctive physiognomy is evident in the display of human figures here, which adds grace to the figures of *apsaras*.

Visually, its rhythm and pattern is like a dream in soft-toned sandstone. It consists of a *Garbhagriha* surrounded by a passageway (the *Pradakshina* path) with porches projecting outward on three sides, a columned *mandapa* also with side porches, and an extended frontal porch is reached by a steep flight of steps. The outer walls are raised high on a sequence of basement mouldings and then divided into multiple projections enlivened with superimposed tiers of sculptured figures. These richly textured surfaces are interrupted by projecting porches where inclined slabs form the back of the balcony seating, and are sheltered by eaves above (Michell, 2000). A series of steps on the east leads one to a high platform then through an exquisite *Makaratorana* on the temple's interior. Walking through the porch one finds intricately decorated halls; which leads to a vestibule (*Antarala*) where the visitor can experience a *darshan* of the marble *linga*, placed at the centre of the cella (*Garbhagriha*). On the exterior of the temples are three bands of sculptures representing *apsara* griffins, images of Shiva, *Dikpalas* and snake goddesses in corners where channels of rainwater flow. Alexander Cunningham counted 646 figures on the exterior of this temple and 226 figures in its interior. The famous erotic groups are placed at the junction of the big hall and the sanctum, which corresponds to the walled portion between two balconies (Michell, 2000).

The spire of the sanctum has a series of graded replicas of itself, which cluster around the central peak and create the effect of a mountain range. In the soft evening light, one can experience the rhythm of the ascent and descent of its miniature spires leading the eye upward to the summit. Exactly below the highest point of the spire is positioned the Shiva *linga* in the womb of the sanctum (Desai, 2000). The darker recesses of the wall surface show protective creatures, mythical beings fighting the forces of evil, and serpent queens folding their hands in prayers and blessings. The play of sunlight over the wall surface creates a rippling effect,

Figure 4. Various views of Kandariya Mahadev Temple illustrating, for example, the ornamentation, complexity, texture, human figurines and scenes.

casting deep shadows in some areas and bathing others with pure light. The design of the temple is, therefore, entirely symbolic of spiritual progress, from the mundane to the sacred, and from ignorance to the eternal light of wisdom.

Khajuraho sculpture is mainly divided into five categories. They are:

- cult images;
- family, attendant and enclosing divinities;
- heavenly nymphs;
- animals and other species;
- miscellaneous themes such as teachers, and disciples, dancers and musicians.

Animals and birds were also closely associated with different cults prevalent during the Chandela period. They were shown as *vahanas* for gods and goddesses and became part of religious imagery, mostly assigned according to the nature of their masters. The erotic sculptures, usually considered as a degrading act of the human soul by religious schools, is different from what *tantra* says. As per *tantric* philosophy, sexual energy, if channelized according to methods of *tantric* canons, can unite the *tantra* practitioner with the Supreme Being Shiva. It is looked upon as just another human activity like any other daily chore. But when one moves inside the temples, one notices a great change. The human figurines do not seem even remotely attracted to sex, but are standing apart in deep contemplation.

Even the inner room of the porch and *mandapa* are created to mimic great upside-down pools with flower and leaf motifs. The doorway of the sanctum is profusely decorated with narrow panels of images. The central lintel carries the seated figure of Shiva holding a trident and snake, Vishnu is seated to his left and Brahma to the right. Within the dark unadorned *Garbhagriha*, stands the creative symbol of Shiva the *linga*, which is the final stage. The walls of the sanctum sanctorum do not have any sculptures, there are bare walls and they have a single *pratima* of the deity.

> 'This temple has been highly praised by art historians and connoisseurs for the superb harmony of the graded proportion for its various component unit along with their superstructures' (Michell, 2000).

Figure 5. Khajuraho city plan (Narasimhaiah, 2014).

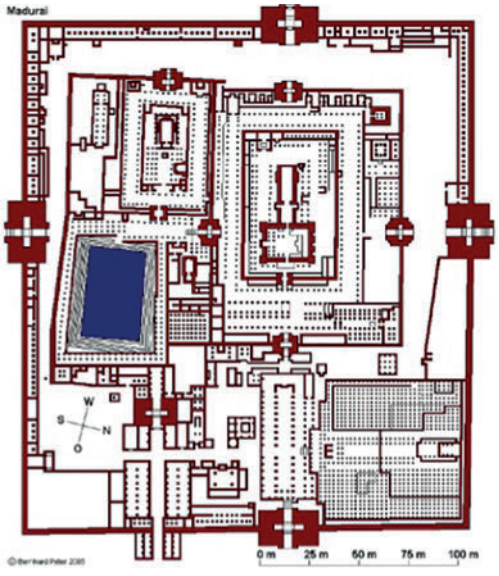

Figure 6. Srirangam city plan (Mariappan, 2016).

2.2 *The historic concept of the city form in theory*

Lynch (1984) rightly states that 'impersonal forces do not transform human settlements'. The normative theory guiding the religious centres throughout history has followed the cosmic theory for the layout of cities or conglomerations. The Indian theorists made explicit connections between gods, men, rites and city plans. The series of texts on city planning – the *Shilpa Shastras* – indicated how the earth could be parcelled out and the evil forces of chaos enclosed and controlled (Lynch, 1984). The typical form of *mandala* was used: concentric rings and subdivided squares overlapping to form sub-parts, each significant and appropriate for certain specific activities. This pattern concentrates most power to the centre.

Lynch (1984) points out that with the help of myths, it was explained how a city came to be, demonstrated why a city worked as it did and what could go wrong. If these tenets were followed, they enhanced earthly power and gave people feelings of security, awe and pride. They were complete and operative theories of the city, both functional and normative. The radial perfection of the cities was meant as a symbol of the orderly, mathematical universe. Some common concepts, according to Lynch (1984), are the axial line of procession and approach, the encircling enclosure and its protected gates, the dominance of up versus down or big versus small, the sacred centre, the diverse meanings of the cardinal directions, the regular grid for establishing a pervasive order, the device of organisation by hierarchy, bilateral symmetry as an expression of polarity and dualism, landmarks at strategic points as a way of visibly controlling a large territory, and the sacred nature of mountains, caves and water. These similar features of form were reinforced by similar institutional features, such as regularly recurring religious rights, the organisation of government, disposition of the social ranks, and the dress and behaviour of city people. Space and rite are establishers of behaviour and serve to bind human beings together, just as they do for many other animals. Behind these concepts lie certain primary values: order, stability, dominance, a close and enduring fit between action and form, but above all the negation of time, decay, death and fearful chaos (Lynch, 1984).

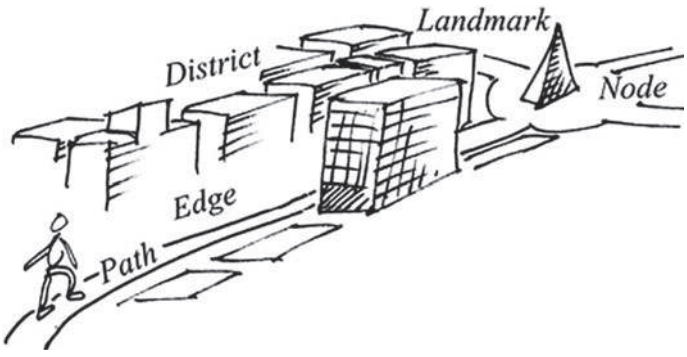

Figure 7. Elements of the city Kevin Lynch—Image of the City (Lynch, The Image of the City, 1960).

It can be seen that these symbolic forms are attractive because they speak to deep emotions of anxiety in people. They do indeed give a sense of security, of stability and continuity, of awe and pride, and while the magical rational of the theory may be discredited, the psychological power of these devices cannot be so easily dismissed. The cosmic model upholds the ideal of a crystalline city: stable and hierarchical—a magical microcosm in which each part is fused into a perfectly ordered whole. If it changes at all, the microcosm should do so only in some rhythmical, ordered and completely unchanging cycle (Lynch, 1984).

Districts have a strong visual identity and an endowment of visible boundary, active centres of special characters, visible and audible landmarks at strategic points and time; and natural features or conservable urban character.

Orienting buildings to the apparent movement of the sun makes the compass direction legible and increases a sense of structure of time. While historic conservation is used to make connection with the past, less thought is given to the connection with the future. It is also possible to increase sensibility by improving the human ability to perceive the environment, and this is less often thought of by designers trained to focus on objects.

The plurality of users in any large settlement will always pose technical problems. Thus sensibility will be easier to attain in more stable and homogenous societies. It is likely to be important both in rich and poor settlements, since human perception is a constant, but the means of achievement will differ.

The city is a 'field of force', but more than anything else, the city is a communication network. Thus it seems plausible to import the concept of a field of force, which is such a powerful metaphor in the physicist's universe and deals with multiple influences acting at a distance. The study of a city has no powerful basic language of its own, but expresses itself by borrowing the devices of geographical architecture.

3 DISCUSSION

3.1 *Temples are the reflection of the society*

Temples are the reflection of the society we live in, and depict the times along with the social and cultural fabric of the place. As discussed previously, Khajuraho city plan does not exhibit patterns in plan which may be similar to or compared to the plan of the Khandariya Mahadev temple. But in the example of Srirangam city Madurai Figure 6 it strictly follows a particular repetitive pattern in the plan of the temple as well as the city. Srirangam still sticks to the original *mandala* plan, historically laid out for it and the streets and bus routes follow the same pattern and appears in its purest form. The city itself is composed of seven concentric wall enclosures of which the inner four are part of the temple, while the outer three are residential quarters (Kostof, 1991). Similarly, in Banares or Varanasi, the first city to appear after the great

cosmic dissolution (*mahapralaya*), Hindu cosmography is charted through holy markers and the pilgrims' routes. The ideal diagram is of a series of concentric circles increasing in sanctity as one nears the centre. But citing these examples does not make the Khajuraho city plan any less interesting and any less bonded with temple architecture. It is bonded through the theory of temple architecture concept, and the historic city theory laid down by various experts.

3.2 *Relationship of temple construction to the city scene*

Even though the *Shilpa Shastras* laid down strict rules/canons for structuring the ideal city, each city should be looked upon as a unique story of flowering, growth and evolution; as cities are unique historical processes. The metamorphosis a particular place goes through is pertinent to only that place and does not replicate itself anywhere else. The various structural aspects of a city, network, sense of place, time orientation, transparency and legibility only aid in the organisation of thoughts when describing a city. Moreover, the application of the cosmic theory and the organic theory shows very high levels of organisation and discrete planning on the part of our ancestors. These attributes, most importantly, are congruent with the attributes considered while describing a temple monument. The Kandariya Mahadev, in this case, is the epitome of perfection where the cosmic principles are concerned. The concept of the cosmos, the generic pattern, the rhythm and the wisdom, have been beautifully replicated in this example.

The aspects of temple form to be analysed are broadly borrowed from 'The Theory of Architecture' by Nikos Salingaros (2006) with certain inclusions by the author. These parameters are namely: structural order, scale (coherence), inspiration from nature, ornament, temperature, hierarchical cooperation, concept of metaphor, harmony, memes (architectural) and form language. Similarly, the parameters to be considered for the analysis of city form have been adapted from 'Good City Form' by Kevin Lynch (1984). These parameters are: sense, transparency, time orientation, legibility, semiotics, congruence and organisation. Some of these parameters are directly comparable as their idea remains the same through these scales of temple architecture and city planning, whereas some others relate distant and pass through many layers before forming the mental connecting bridge between these scales. If extended growth is necessary, it should occur by the budding of new colonies (Lynch, 1984).

While both these scales have a sharp external boundary, it is not so easy to divide an organism internally. It does not have differentiated parts, but these parts are in close contact with each other and become a homogenous whole when viewed. They work together and influence each other in subtle ways. Form and function are indissolubly linked. They need to be understood as a dynamic whole alongside recognising the parts and sub-parts thereof. As the rhythmic concept of the cosmos is embodied by its deep relationship between "the whole and the part", emotional feelings of wonder and affection accompany our observation of these entities. One is reminded of and given experience of the natural rhythm in the universe, which is consistent at all imaginable scales from the atom, through humans, temples, cities and, ultimately, to the cosmos.

3.3 *The human response, its contribution and intricate relationship with thought processes*

The comparison of these two experiences of the temple structure and the historic city form gives an insight that, although their scales are vastly different, the experiences they suggest create similar heuristics in the mind of the visitor. This is because the parameters of analysis of architectural form target the same senses in our cognition as do the parameters of analysis of city form, therefore giving a similar experience.

Lynch (1984) supports this argument by describing the aspect of 'sense' that is the clarity with which environmental form can be perceived and identified, the ease with which its elements can be linked with other events and places in a coherent mental representation of time and space, and that representation can be connected with non-spatial concepts and values. This is the join between the form of the environment, and the human process of perception

and cognition. This quality lies at the root of personal feelings about cities. It cannot be analysed except as an interaction between person and place. Perception is a creative act, not a passive reception.

The experiences give rise to the responses created by the mind and body of the visitor. These responses, in turn, form part of the impact and experience. This event is less dramatic in the temple context and more magnified in the city context as the number of people experiencing the city is multiple times greater than in case of architecture. Higher the number of people around, more are the responses generated. This has a compounded impact on the city scene. The number of responses generated towards a place, activity or event, in turn, contributes to the sense of place. The scene becomes more intricate as the responses generated by the people are all different, owing to their cultural inclinations, background, moods, and perception of the environment. Thus the sense of a particular place will vary for different observers, just as the ability of a particular person to perceive form varies for different places.

Sense, therefore, not only depends upon the spatial form and quality, but also on the culture, temperament, status, experience and current purpose of the observer. Nevertheless, there are some significant and fundamental consistencies in the experience of different people in the same place. These constancies arise from the common biological basis of human perception and cognition, certain common experiences of the real world (like gravity, inertia, shelter, fire and sharpness in the case of cities, and structure, harmony, ornament and form language in the case of temple architecture), together with the common cultural norms that may be found among those who habitually use any particular place. Places have a greater or lesser sense, and so do events. Activities and celebrations associated with a location, support its perception to the extent that they are themselves perceived as vivid and coherent (Lynch, 1984). Human cognition has its limits and the process of cognition is of greater value than the resulting mental structure. There is pleasure to be found in puzzles, ambiguities and mysteries. Lynch (1984) confirms this general proposition in that an interactive place is one which is, in some way, appropriate to the person and his culture, makes him aware of his community, his past, the web of life, and the universe of time and space in which those are contained.

An important aspect here is the difference between the culmination of the two experiences. In the context of temple architecture, the finale is the peace found through enlightenment after walking through the linear path of the various areas of a temple to reach the cella—*Garbhagriha*. Whereas, in the cityscape context, the cognition culminates into mental pictures of small sections and then their integration, which then encourages an understanding of the spirit of the city and people. This is when all the people in the city become a collective whole and are perceived as a population with one essence.

This larger, more complex organism, the city, has many scales and layers to it, which reveal themselves to the visitor only gradually. First the physical environment is perceived and, progressively, the subtle elements of the cityscape present themselves. In the case of temple architecture, the physical environment casts its spell first, increasingly letting the symbolic metaphors touch our minds and take us on the path of enlightenment.

4 CONCLUSIONS

It can therefore be concluded that balance and coordination between traditional ideas governing architecture and conglomeration design have historically been the guiding light in constructing our built environments. The sharp and clear connections between architectural expressions and responsive cities' forms show that an observer perceives them in the same manner heuristically. The perception of the built environment is one that is impacted immensely by classical conditioning of a person of that generation and thought. This also points towards the fact that a kind of people will perceive a particular surrounding in a similar manner, to generate similar heuristics and therefore similar responses.

These feelings generated, become multifold in case of a city response, which is magnified due to the sheer presence of numerous people, their experiences, and therefore their

responses. These responses generate further responses, making the process and the built envelope more complex. This complexity contributes to the sense of the place. Therefore, any type of space will be observed and responded to with similar intent and result.

An interesting point to be noted here is that modern contemporary architecture is very much a part of the cityscape experience and contributes significantly to the response generation process. Though this aspect is part of ongoing research that does not form part of this paper, it needs to be mentioned that most historic cities have evolved into a beautifully knitted fabric of tradition and technology, presenting both as if amicably sitting beside each other, and speaking for themselves as well as each other. This texture is seen in the physical built form, along with peoples' attitudes towards everything around them.

This paper therefore concludes on the similarities in the cognitive heuristics of these physical environments of historical temple architecture and cityscapes. This beautiful symbiotic relationship enhances each other's cognitive qualities, as they can never exist independently of each other. They are both intertwined in each other, as are the people who are creating them, experiencing them, and responding towards them, thereby creating a new whole and continuing the cycle.

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Interactions between urban dynamics and new spatial patterns: The case of Istanbul

Hulya Turgut
Department of Architecture, Faculty of Architecture and Design, Ozyegin University, Istanbul, Turkey

Ozgur Ozten
Architect, M. Arch, ITU

ABSTRACT: Cities are increasingly concerned with fluidity and mobility, where social, cultural and economic activities can rapidly be transferred from any one locality to another. Yet, powerful effects of globalisation on economy, society, and urban environment create fragmentation as well as interesting transitions in each system. Whilst urban transformation in response to globalisation creates sharp changes in former urban textures and typologies, new spaces and identities have been produced with the formation of recent networks and encounters. This paper, therefore, examines the implications of urban and housing transformations in the city of Istanbul within the context of recent economic, cultural and political conditions. The authors aim to establish a critical discussion of the city's texture, where separate and overlapping urban functions are easily captured through a site section.

Keywords: urban environment, urban transformation, globalisation, housing transformations, city texture

1 INTRODUCTION

The rate of change in urban housing environments is continually increasing as the effects of globalisation impact in multiple ways on the contemporary city. Such dynamic processes create what has sometimes been described as a layered construction created over the course of time. Many of the changes relate to the movements and energies of low-income groups whose activities are becoming increasingly dominant in rapidly growing cities throughout the world. There are numerous interrelated factors in the growth of cities. Migrants from rural areas and small-size cities create pressure on existing urban housing stock and frequently on the development of new informal settlements. Natural growth of urbanised groups leads to large populations seeking affordable accommodation. In some cities, historic or older central areas deteriorate through excessively high densities of tenant populations and, in others, high-density multi-storey constructions replace older settlements, changing the social and economic relations of the area. In recent years, especially in metropolitan cities under the umbrella of urban regeneration, informal settlements or deteriorated housing stock have been replaced with high-rise housing and gated communities geared towards the high-income population.

In the case of Istanbul, one of the key factors in the creation of this transformation is the replacement of existing stock (such as informal settlements) with new developments. The new housing stock creates a new chaotic and mixed development which forces different demographic groups to live side by side. Istanbul is a city of layers with a history dating back almost 2,700 years and has served as the capital city for the Roman, Byzantine, Latin and Ottoman empires. Today, with more than 15 million inhabitants, it still preserves the surviving fragments of these civilisations. The city carries significant architectural entities, such as mosques, synagogues, churches, palaces, towers and castles, which represent the various

chronological layers, serving as the 'modern' face of Turkey's cultural and financial capital. Istanbul has performed as a 'global city' that connects civilisations and continents for several thousand years. In addition to this, it has been facing a new situation caused by new social and spatial urban dynamics. Its urban texture has been changing like any metropolis that is undergoing the trauma of warp speed urbanisation (Figure 1). According to the international investigation of cities carried out by the Urban Age Project, Istanbul may not be growing at the dizzying pace of Mumbai and Shanghai, nor suffer from the widening social inequality and violence of São Paulo, Mexico City or Johannesburg, but it does face many of the same challenges confronted by all 'Urban Age' cities, including London, Berlin and New York: economic stability, social cohesion and climate change (Burdett & Nowak, 2009).

Turkey's urbanisation started to accelerate in the 1950s. Due to the lack of housing policies and inefficiency in providing housing to the newcomers, the city experienced the *gecekondus*, which are basic shelters for low-income inhabitants. Later, this phenomenon shifted into *apartkondus*, where the *gecekondus* were transformed into apartment blocks. The authorities applied little restriction over this process of newly built illegal settlements on public land, both in terms of quantity and quality. Therefore Istanbul, along with many other big cities, faced urban margins with no infrastructure, public space and legal status. In the 1980s, along with continuing economic development and reforms, these formerly prestigious inner-city districts gained new popularity among higher-income families, attracted by their location close to the financial district (Ergun, 2004). Most of the physical transformation associated with globalisation has taken place with the development of gated communities and five-star hotels. Istanbul has been packaged as a consumption artefact for tourists and new office towers, with the expulsion of small businesses from the central districts, gentrification of the old neighbourhoods, and global images on billboards and shop windows (Oncu, 1997). In the last four decades, Istanbul's sociocultural and urban identities have been undergoing radical transformation. Although Istanbul has always been a city of duality, fragmentation and polarity, it has never before displayed such intense qualities of heterogeneity as it does today (Keyder, 1999). Economic policies seem to have always had a strong effect on urban growth and change in Turkey. In each period, the urban space has been shaped by the economic policies of the state. As in other countries, social and cultural change in Turkey has followed economic cycles. While today's cities are being shaped within the effect of global restructuring processes, urban housing has been evolving by itself, interacting with these changes. The development of housing areas and the creation of the environment are therefore being formed under the influence of a confused interaction between globalisation and the city's own history (Turgut, 2010).

In this context, this paper is based on ongoing research on 'new urban housing concepts' and the Master's thesis of Ozgur Ozten, supervised by Hulya Turgut (Ozten, 2010). The ongoing research seeks to examine various examples of new housing developments in Istanbul by investigating the social and spatial dynamics of its new situation. This provides and creates a platform to discuss the issues of emerging residential patterns and dynamics of the city of Istanbul.

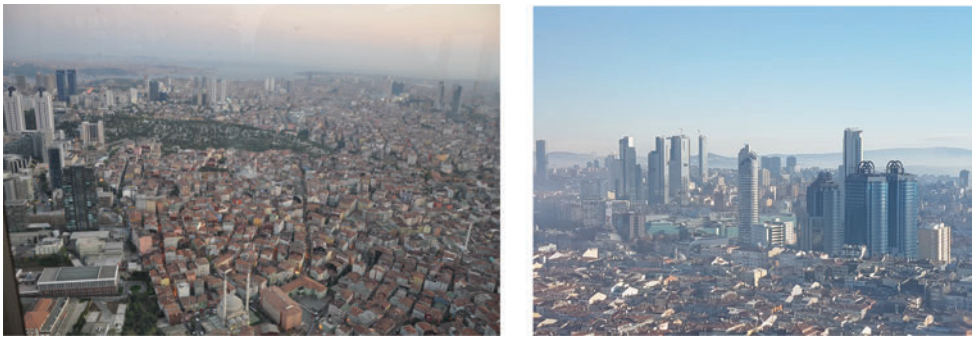

Figure 1. New faces of the city profile of Istanbul.

2 URBAN DYNAMICS AND NEW RESIDENTIAL PATTERNS EMERGING IN ISTANBUL

Today's urban dynamics follow changes in global restructuring processes and cities are becoming the stages for transformation. The urban dynamics that arise from global platforms also have an effect on the formation of new urban housing trends. Between the city and its role in the process of globalisation, there is a transactional relationship which arises from economic, political, sociocultural and technological changes. Urban dynamics that affect the transformation can be categorised into six main areas: global economy; being a 'world city'; diversification; new joint ventures and participation; new industries; social exclusion and societal fragmentation (Cakır, 2007; Turgut, 2010; Turgut & Inalhan, 2007). The concept of the global economy brings prestige, competition, economic revival, governance and foreign capital. Thus, by the expansion of the global economy, urban transformations are targeting the 'marketing of place and prestige'. The representational need of the city in this matter gives rise to the concept of a world city in terms of urban identity, image, environmental quality, tourism, consumption and the industry of culture. The focus on urban identity, image and quality also has a direct relationship with urban memory, sustainability, local culture and conservation as components of diversification. The generation of knowledge, advanced technologies and productivity as the dynamics of new industry in the city has an impact on urban transformation. All these interlinked urban dynamics also highlight issues of social exclusion and fragmentation, where the need to bring equality, liveability and accessibility is the aim of an urban transformation. All of these concepts have found their reflections in the formation of a holistic urban vision (Turgut, 2010).

Istanbul's rapid urban transformation during the economic restructuring process of the last four decades has occurred through the interaction of politics, culture and economy, and been directed and legitimised by the global city discourse. During this period, many global city discourses have been developed for Istanbul. Central government and local authorities have proposed various projects to position Istanbul as a global city. These projects have been radically transforming Istanbul's urban identity and the city has been growing with intense heterogeneity, especially in its urban housing (Turgut, 2010). Since the beginning of the 1980s, change in the city has been the driven by the effects of globalisation, liberalisation of the economy, rapid urbanisation and technological advances. This change, while being more prominent in the 1980s, gained momentum in the 1990s. Economic policy, which produced radical changes in the social structure, played a key role in the change and transformation process. It transformed the urban space and created new urban forms.

In the mid-1980s, the peripheries of Istanbul became more popular for residential settlements for the urban middle-high and high-income groups. In the 2000s, inner-city residential areas became affordable and desirable for middle-income groups. According to Kurtuluş (2005), the reason for the security tendency in the case of Istanbul is the urban elites trying to integrate the global consumption culture in their residential areas. Prestigious neighbourhoods guarantee real estate values, security and a sense of privilege and there are, therefore, often gated settlements in Istanbul. Developments caused by changing economic structure and global influences have created a new metropolitan lifestyle for the middle- and upper-income groups, which has resulted in a demand for luxurious new houses. The development of new housing patterns over the last 30 years in Istanbul can be divided into four categories: garden cities—suburbia (beginning in the 1980s): luxurious housing—villa towns and settlements (beginning in the 1980s); multi-storey residences (beginning in the 1990s); mixed city housing (beginning in the 2000s); and mixed inner-city and outer-city housing (Turgut, 2010; Turgut et al., 2010).

In this context and over the last four decades in Istanbul, the urban texture represents different elements of choices, time periods, styles, functions and users with an intense degree of heterogeneity. At this point, the urban section of the city is capable of forming a new type of urban layout: a mixed form of functions and transformations. In order to show this new type of mixed urban layout, this paper will analyse a cross section of the Levent-Maslak neighbourhood in Istanbul, with a focus on housing developments.

3 ISTANBUL'S CHANGING URBAN TEXTURE: THE EXAMPLE OF THE LEVENT-MASLAK AXIS

As already described, the new forms of housing area resulting from the effects of the interactions between globalisation and the city's own history give Istanbul several important urban areas to exemplify this structure. The Levent-Maslak axis in Istanbul is an important example in exposing the changing urban texture and housing preferences. It is more of a critical debate about the area of focus where the social and physical fragmentation are clearly exposed. By analysing this part of the city, this paper aims to cover the accessibility and the readability of the different dynamics of the urban environment and their reflections on the process of transformation. Therefore, through the changes in the Levent-Maslak area in economic, political, social, ecological and psychological terms, contradictions, transformations and reproductions are combined within the same location and can be exposed.

The Levent-Maslak axis has an important and critical function as the node point between the Asian and European routes of the city's main roads. Therefore, it is the most important north–south transportation axis within the city.

The Levent-Maslak axis named *Büyükdere Street* started a change in its development path during the 1990s with the rapid construction of high-rise buildings, increasing rates of high-density population, and a shift in profile. The axis is shown in Figure 2: on the west side the street covers the illegally developed neighbourhoods of Ortabayir, Celiktepe and Emniyet Evleri, and on the east side Levent and Konaklar neighbourhoods exist with a shift in their previous functions of being social housing units into mostly business and commercial use (Ozten, 2010). This differentiated development of the axis, therefore, has brought an emerging sociocultural fragmentation, duality, polarity, social exclusion, especially since the 1990s. For a resident of the city, the social exclusion process is becoming more evident via spatial diversification. While holding a spatial sense of belonging towards a location, an exclusion

Figure 2. Location of the Levent-Maslak axis and its close surroundings.

Figure 3. Levent high-rise blocks and the Levent's former social housing units on the left, and illegal housing areas on the right.

from all the other elements brings social exclusion and cultural and spatial fragmentation. These developments result in a mix of identities or, in a general context, the loss of the identity of the city itself (Kurtuluş, 2005).

In this framework, the focus on the Levent-Maslak development axis and its cross section aims to expose the loss of identity of the city where social and spatial fragmentation is sharp and sense of belonging is relative. The aim is to create a critical framework for the process of rapid urbanisation of the city of Istanbul and its impacts on the city's different housing areas and preferences. Therefore, urban development phases through the cross section of the Levent-Maslak axis will be described within the time frame in order to pin down key points of spatial and social transformation and fragmentation.

3.1 *Formal part of the axis: Levent social housing area*

The area was designated as the northern development path of Beyoglu district and proposed to become a housing settlement. It started to develop in 1947 with the social housing project of Emlak Kredi Bank, completed in 1960 as one of the few exemplary social housing projects of the Turkish Republic. In 1975, single-storey housing units were given permission for a plus one storey and this permission brought the settlement a spatial change. With the 1980s master plan for the metropolitan area, Levent was assigned as a housing development site to promote Istanbul's importance and image within the global arena. According to the 1994 master plan, due to the increased efficiency of highway and transportation axes, the commercial axis of the 1980s master plan was expanded towards the Maslak area in the west. After the construction of the second bridge over the Bosphorus, the joint roads cut through the Levent area and, together with this effect of transportation, the neighbourhood started to be impacted by a second transformation phase. This transformation mainly triggered functional changes as well as an increase in market values. This sharp differentiation in values brought social housing into a luxurious housing development and this change was reflected spatially on site, especially with the Besiktas Municipality's permission in 1991 for preservation of heights of the units, transformation of buildings to tourism-oriented commercial units (Ozten, 2010).

3.2 *Informal settlement areas: Ortabayir, Celiktepe and Emniyet Evleri*

While the Levent social housing development started its implementation, the west side of this location was being used for agriculture and animal farming in the 1950s. Because of the rapid

Figure 4. Former and current social housing of Levent on east side of the Levent-Maslak axis (Aru & Gorbon, 1952).

Figure 5. Informal settlement areas: Celiktepe neighbourhood on west side of the Levent-Maslak axis.

migration process from rural to urban areas, at the end of the 1950s these locations—known today as the neighbourhoods of Ortabayir, Celiktepe and Emniyet Evleri—were given to immigrants by the municipality in order to cover the increased need for housing. This was followed by the development of unplanned and illegally built housing units in the area. With the first master plan implementation in 1975 and the permissions given to illegal developments between 1975 and 1985 the spatial texture of this area started changing. With 1985's rehabilitation master plan, the transformation process of low-storey housing units brought medium-sized apartment blocks to the site and the characteristics of the illegally developed settlement were continuously changed (Ozten, 2010). From this period onwards, it is possible to locate spatial formations belonging to different development processes of the area.

3.3 *Büyükdere Street as the Levent-Maslak axis*

According to the Prost master plan (1937) for Istanbul, all roads towards the north were supposed to be enlarged in order to create a main artery. With the additional planning of 1955 and the development of a new industrial area in the Levent neighbourhood, low-cost lands in the surrounding area started to develop illegally on the west side, whilst along the road industrial buildings and factories started to get built. From the 1970s, the Levent-Maslak axis was developed along with new urban developments in the city. It is important due to its northerly direction towards water reserves and forests. In the 1980s, office buildings started to get constructed along the road. Besides its orientation towards the north, Büyükdere Street is today used as a prestigious business centre that is different from neighbouring areas. Since the 1990s, the functions along the street have shifted greatly towards business, residences, shopping, commerce and offices (Gulen, 2006). The street is now a mixed-use, high-rise axis of the city of Istanbul (Ozten, 2010).

3.4 *Evaluation*

Istanbul as a multifaceted metropolis has gone through a rapid transformation process as a result of local and global pressures. During the 1980s, effects and transformations on the spatial environment became sharp and dynamic. In this context, two main approaches were exposed in the city's development. The first one was, as Ohmae (1995) states, that the world moved towards a singular identity and lost regional constitutions, and the other approach was, as Taylor (2000) underlines, that the global economy created new spatial forms as well as controlling the surroundings. In this response to the new millennium, spatial developments started to be more competitive in order to attract large-scale projects and foreign capital. In this manner, cities such as Istanbul sought to boost their urban environments and their popularity by adapting themselves to the new global urban dynamics.

In this context, this paper aims through the case study to visualise a dynamic spatial development during the last 60 years of the city's development history. Thus, the impacts of all the periodical urban and social dynamics are exposed within a cross section of the

Levent-Maslak axis and its surroundings (see Figure 6). Together with a clear distinction between the fragmented social and spatial characteristics of the neighbourhoods, Büyükdere Street has developed as a catalyst of the global dynamics for the whole area in terms of construction and spatial transformation. Therefore, because of the force exerted by the new type of urban development that fits into the global dynamics, the close surroundings of the street were affected by this influence much more radically. Thus, through a time frame bulleting the differentiation of urban dynamics according to the current needs and expectations, an urban development path is exposed. With the transformation of planning visions and political assents, a sharp change in the social and spatial developments brought fragmented societies and spaces into the cityscapes in return. In this manner among the city of Istanbul's sharp transformation process through local policies since 1940s, sharp changes in the urban identity and the image, social and spatial texture are being exposed for the case study area of the Levent-Maslak axis in this paper. In the 1940s, along with the start of rapid migration and the process of industrialisation, Istanbul, just like many big cities, also faced rapid urban development and new formations in its spatial texture. New urban development plans and implementations also catalysed the formation of the new avenues of Vatan and Millet, new factories and industries in the Levent area, and neighbourhoods like the Levent social housing settlement. As a result of these new developments, the lack of housing policies, insufficient housing for newcomers, and the destruction of housing areas to open up new avenues, the Istanbul municipality gave the Ortabayir, Emniyet Evleri and Celiktepe areas, which were former agricultural lands of Kagithane village, to the immigrants to settle. On the other hand, with the modernisation period of the country, Levent social houses were also built between 1947 and 1958 in order to exemplify a modern neighbourhood development. In this context, the rapid housing developments of the city varied from horizontally growing illegal settlements to new neighbourhood designs of social houses according to modern theories. From the 1960s onwards, urbanisation within the city speeded up and enforced the Levent-Maslak axis as a new urban route, together with its modern housing and industry. Emphasis on motorways and highway transportation also sped up the development of the Levent-Maslak axis. With the opening of the first bridge over the Bosphorus in 1973 and the second one in 1988, the Levent-Maslak axis became a joint venture in the area. Increase in the commercial and industrial developments along the axis catalysed the extension of the illegal settlements around Emniyet Evleri, Ortabayir and Celiktepe neighbourhoods and increased the horizontal and vertical growth in these areas.

With 1980s neo-liberal influences, Istanbul started to become a metropolis and created a vision to establish a modern image within the global arena. One of the peak points in this period is the start of permissions for illegally developed areas, which led to a situation in which horizontal and low-rise housing grew towards medium-sized apartment blocks. The process started the transformation of housing settlements physically as well as functionally. With the new visionary developments of the city, the Levent-Maslak axis started to reshape

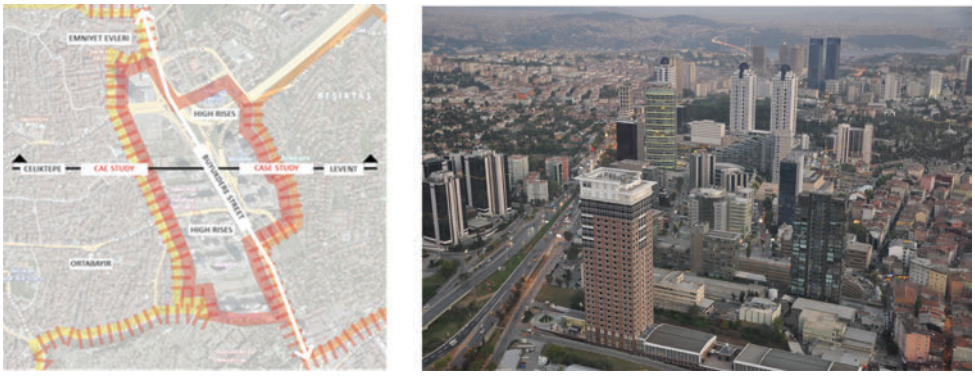

Figure 6. Interaction zones within the focal section of the case study area.

its first structure and moved towards commercial and housing in mixed use. From the 1980s until the millennium, fluid and rapid global influences developed the Levent area as an image of the city of Istanbul with its modern housing, and recently implemented commercial uses. By the 1990s, the Levent-Maslak axis had become the modern representative of business and commerce with the first high-rise constructions in the city of Istanbul.

In the last two decades, through the significant effects of the global economy and the political pushes for Istanbul to become a world city, a construction peak has taken place along the Levent-Maslak axis. This construction boom affected the former spatial texture and demonstrates a dynamic transformation process in the case study area. In this respect, along with the axis as the main centre of gravity for the zone, the adjacent, illegally developed neighbourhoods of Emniyet Evleri, Ortabayir and Celiktepe, as well as the Levent social housing area, have adapted their physical environments and sociocultural inputs to the recent global dynamics.

In this manner, the urban transformation of the area exposes a social and spatial fragmentation, with a societal exclusion along the main axis. Thus, although a sharp distinction along the axis exists in physical, social, cultural and economic terms, fragmentation among the society within the area creates a contested heterogeneity. Therefore, across the area as a whole it is possible to expose a variety of physical examples of different periods that developed due to changing urban dynamics. To sum up, from 1940s until today, development of the Levent-Maslak axis has created an urban contest due to global dynamics reflected in the site. This urban contest eventually affected the housing settlements in the area and resulted in socially and spatially fragmented urban development.

4 CONCLUSION

The paper concludes its urban development statements for the city of Istanbul, where recent urban dynamics are restructuring the cityscape and the society in physical, social and cultural terms. Based on this framework, recent housing projects, new development trends, former urban patterns and new forms of spatial and sociocultural interactions are reflected in the city's development attitudes and its future development. However, it is also important to underline that the interaction of spatial dynamics, sociocultural values, and their transitions give rise to a rapidly changing urban settlement. In addition to this dynamic movement, a loss of cultural, social and spatial identity takes place through the effects of globalisation. Particularly since the neo-liberal urban dynamics of the 1980s, globalisation has created spatial and social tensions, emphasis on real estate values, and representational struggles for creation of a holistic image.

As a multi-layered or palimpsest city, Istanbul, with its historical and cultural values, undergoes an important and rapid transformation process. The importance of the transformation process of the city is its intense speed. In fact, the speed of the process shifted the urban texture of the city from a small-scale contractor, small-sized plot combination of little architectural input to a high-level social class's market development.

Cities do face continuous changes; however, within this continuous change some manage to transform spaces through development of their unique characteristics. In the case of Istanbul, rapid change of the cityscape has brought little quality into the spatial texture but rather a mixture of interaction and a loss of identity. Today, Istanbul might be characterised as a city based on a multilayered physical structure of a variety of influences and contradictions from Eastern and Western civilisations. However, as a city that faces migration, and constant reshaping over the past 2,700 years, this historical, spatial and sociocultural palimpsest within the urban environment should be analysed with a multi-dimensional and comprehensive approach and accepted as a heterogeneous compound.

To develop a visionary approach for the heterogeneous structure of the city of Istanbul, in which new dialogues and alternative development strategies can facilitate the establishment of social and spatial links, a holistic approach is needed. Thus the formation of spatial environments, housing settlements, representative spaces whilst developing qualified environments

for inhabitants of the city, the potential of palimpsests and heterogeneity of spaces should develop inclusive urban environments as well as social interaction.

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Investigating a sense of place at a historic commercial street corridor: Visitor perception of social aspects

Astrid Kusumowidagdo & Dyah Kusuma Wardhani
Universitas Ciputra, Surabaya, Indonesia

ABSTRACT: A strong social relationship between people and a place can trigger the emergence of activities, which can also strengthen the bond between them. This study will examine the Ampel Street Corridor, which is a historic religious area in Surabaya, Indonesia. It is an area with a strong identity and has a bonding relationship with its visitors. This study aims to reveal the types of relationships between the visitor and the place, confirm the scale of 'sense of place' that uld be achieved in this location, and to identify social aspects that are essential for experiencing this area and creating a sense of place. The nature of this research is qualitative. The data collection techniques were by interviews, focus group discussions, visual observations and documentation. The results of this study revealed that the relationship types found between a person and a place are biographical, spiritual, ideological, narrative, commodified and dependent. Another revelation is that the sense of place that the visitors could experience includes the knowledge of being located and involved in a place, belonging to and being attached to a place, identifying the self and the place's goal, and making sacrifices for a place. A third discovery is that the social aspects that create the sense of place are history, memory, crowdedness, religious atmosphere, lifestyle, interaction, activity, and the presence of Arabian merchants.

Keywords: social factors; sense of place; street corridor; religion; culture; people–place interaction

1 INTRODUCTION

Fischer found that urban-scaled places are generally becoming the centre of diversity, tolerance, socialisation, means of public transportation, cosmopolitanism, and information exchange (as cited in Gieryn, 2000). This can, therefore, trigger the occurrence of spontaneous interactions, freedom and creativity. In many cases, these community processes can be held in community centres through regular interactions, which depend on various factors including social class, ethnicity, taste, lifestyle and culture (Wellman, 1979). Besides physical appearance, people and social conditions are also elements that create a sense of place, and thus these elements are highlighted in this research.

The 'sense of place' has long been studied in the parameters of geography, architecture and urban design. Many studies on the sense of place focus on the relationship between social factors and place ownership, (Bondi 1993; Waxman, 2006), childhood memories (Chawla, 1992; Marcus, 2006) social interaction, opportunity to linger, social being, and the familiar stranger phenomenon, among others (Waxman, 2006). Various locations have also been studied, such as the corridor of a shopping centre (Kusumowidagdo et al., 2015), corridors of underground channels (Zacharia, 2002), corridors of street trading (Shamsuddin & Ujang, 2008), and camping areas (Kyle & Chick, 2007). This research aims to explain the social factors that are linked to the trade corridor of the religious historical area in Ampel, Surabaya, Indonesia.

2 RESEARCH PURPOSES

The purposes of this research are as follows:

- to find the types of relationships that occur as a result of the people–place relationship;
- to confirm the sense of place that could be experienced; and
- to explore the kinds of social aspects that trigger the creation of a sense of place.

Theoretically, this research is a preliminary study of the preservation of sense of place in the street corridor of Ampel, Surabaya, Indonesia, as a historic and religious area.

3 LITERATURE REVIEW

3.1 *Defining the sense of place and relationship type towards a place*

Sense of place can occur as a result of the complete sensing of the environment, either physical or social conditions, which make people feel attached to a given place. Cross (2001) explains that the process of developing a sense of place can occur as a result of six types of relationships, namely biographical, spiritual, ideological, narrative, commodified and dependent. Biographical relationships relate to the chronology of life's journey, and the forms of this relationship include historical and family ties. Spiritual means everything associated with feelings of self-creation, and the forms of this relationship are emotionally tied and invisible. Ideological means that the process is created and runs according to both ethical and religious aspects in society, while it takes the form of morality and ethics. Narrative means the process is formed through a variety of stories, myths, family history, political, and fictional stories. Commodified means the relationship is formed through a place that reflects self-actualisation, lifestyle, and other places that reflect an ideal; the form of this relationship is cognitive—based on choices and desires. Dependent means the emergence of a sense of place is usually because there is no other choice or because of economic factors, for example; the form of this relationship is material. The emergence of different senses of place is due to the different levels of satisfaction, identification and attachment to the community that each person has (Hummon, 1992).

3.2 *The scale of sense of place*

When relationships between people and places emerge, there will be self-intentionality of people towards that relationship. According to Shamai (1991), intentionality of the sense of place is categorised into different scales ranging from not having a sense of place (Tuan, 1977), knowledge of being located in the place, belonging to a place, being attached to a place, identifying with the place's goals, being involved in a place, to making sacrifices for a place.

3.3 *Social factors of sense of place*

The indicators of social factors discussed in this research are crowd and density (Bell et al., 1997). Density can cause stress and distress (Milgram, 1974, Saegert, 1978). However, crowds at an event in a shopping centre and cafes can be perceived as something positive (Bell et al., 1997) and can encourage other visitors to join in and make them passionate about the place. Meanwhile, the density can be perceived differently from each person's point of view (Baker, 1986; Bell et al., 1997 d'Astous, 2000). Other visitors with an appropriate lifestyle (Astuti & Hanan, 2011; Baker, 1986; d'Astous, 2000) and crowd size and behaviour (Baker, 1986; d'Astous, 2000) can provide a feeling of comfort and security, while ethnicity also affects the sense of place (Kusumowidagdo et al., 2015). Moreover, ethnicity, besides race (Zakaria & Ujang, 2015), is a cultural characteristic that also influences a sense of place. Other social factors include cultural beliefs and past experiences (Hashemnezhad et al., 2013; Low & Altman, 1992; Ujang, 2008), as well as interaction and activity features (Hashemnezhad et al., 2013), and memories and experience (Hashemnezhad et al., 2013).

4 RESEARCH METHOD

This research paper is an explorative preliminary study that aims to get one step closer to the overall research objective. This research was qualitative in nature, using interviews, visual observation and documentation, and focus group discussions to obtain opinions related to the objectives of this research. First, interviews were carried out with three people, which included experts and community leaders in the study area. Second, visual observation and documentation was performed for about one month in this area. Third, a focus group discussion was organised and carried out. Ten visitors with various backgrounds were treated as members of the focus group discussion that revolved around three aspects: types of relationships, social factors that trigger a sense of place, and the scale of the sense of place. The number of informants was based on Sari (2012), who suggested six to twelve informants were needed in order to have a mini-focus group discussion. The questions mentioned in focus group discussion are on Table 1.

5 RESEARCH PLACE CONTEXT

The research setting, the city of Surabaya, is the second biggest city in Indonesia after Jakarta (the capital city). Surabaya is a melting pot for various cultures in Indonesia, which have developed alongside modern urban life. One of the most interesting places in Surabaya is the 'Arabian village' complex, where many Arabian descendants live. This Arabian village has become a historic religious tourism site, particularly because Agung Ampel mosque and the tomb of Sunan Ampel, the propagator of Islam in Java, are located there. These nodes function as a centre for activities with corridors leading between them. The corridors themselves have become crowded business areas and lead to the centre of the Ampel. The two

Table 1. Questions to guide the discussion activities in focus group discussion.

No	Topic	Questions
1	Types of relationships in the Ampel Street Corridor	What motivates you to come here? How can you describe your attachment to this place? Do these types of relationships describe all the possible types of relationships?
2	Scale of sense of place in the Ampel Street Corridor	Can you describe that intensity on a scale? Is this scale of sense of place representative of your attachment to this place?
3	Social aspects of sense of place in the Ampel Street Corridor	Why are you interested in being in this place? Are you familiar with this place? What are the social conditions that become the characteristics of this corridor?

Figure 1. The location of Area A in Ampel Street Corridor.

Figure 2. The location of Area B in Ampel Street Corridor.

most crowded corridors were chosen to form the focus of this research. The chosen corridors were crowded during the study with visitors on a religious tour, purchasing things for their prayer needs, as well as Arabian souvenirs. The chosen corridors were divided into Areas A (Figure 1) and B (Figure 2). Area A was the entrance of the Masjid Agung and the tomb of Raden Rahmat Sunan Ampel. Area B was the area called Ampel Suci Corridor.

6 FINDINGS AND DISCUSSION

6.1 *Relationship types at the Ampel Street Corridor*

The types of relationships between people and place in Ampel Street Corridor included biographical, spiritual, ideological, narrative, commodified and dependent relationships.

> *When you come for the first time, the process of recognising the identity of a place begins. For example, its gate, signage, or any other characteristic can make anyone recognise the identity of the corridor as an area of activity. This identity differentiates between Ampel and other corridors.* (M, Employee).

> *Besides identity, the sense of place can be the feeling of owning the place and feeling closer to the area. The attachment to the place is also possible, for example, it could occur as a result of the willingness to be involved in the development of the area. Other activities such as charity work are also possible since this area is identified as a spiritual area.* (F, Architect, 34)

> *Biographically, someone who is involved in an area must share an emotional bond with that area. Spiritually, religious similarity can trigger the connection between humans and the Ampel corridors area. The similar Muslim fashion, style and religious activities make the place seem familiar.* (D, Architect)

> *It is automatically commodified since the corridors are used as an area for vendors, commerce, and is full of small business activities.* (R, Employee, 30)

> *Narrative bonds have emerged from the history of Sunan Ampel as the propagator of Islam in Java.* (M, Employee, 30)

6.2 *The scale of a sense of place*

The sense of place, according to Shamai (1991), can range from not having a sense of place (Tuan, 1977), knowledge of being located in the place, belonging to a place, being attached to a place, identifying with the place's goals, being involved in a place, to making sacrifices for a place. All of these could be cases within this study.

6.3 *Social aspects that create sense of place*

The social aspects that influence a sense of place are history and memory, crowdedness, religious atmosphere, lifestyle attributes, interaction and activity, and also the presence of Arabian merchants. History, memory, crowdedness, religious similarity, lifestyle attributes, interaction and activities are social factors were found in both Area A and Area B. The presence of Arabian merchants is what differentiates Areas A and B, as they were found only in Area B. The similar social aspects that are found in both Area A and Area B are set out in the following subsections.

6.3.1 *History and memory*

The memory of Sunan Ampel, as a propagator of Islam in Java, is one of the social factors. This legendary figure was buried in the Ampel area, close to the Ampel mosque. This area is therefore a site for religious tours as well as a tourist spot that preserves the memory and history of Sunan Ampel.

> *Sunan Ampel was one of Walisongo, that is why many people come here for religious tours; they pray here and wish for blessings.* (D, University student).

Memory and history are part of the determining factors, as described in Najafi and Shariff (2011) and Hashemnezhad et al. (2013).

6.3.2 *Crowdedness*

The crowds often make the Ampel Street Corridor seem too crowded; however, this identity is already formed and hence contributes to the sense of place of this area, which is supported by the following statements:

> *This small corridor is full of visitors who thrust into each other, and because of its crowdedness, some visitors even push each other and drop their goods.* (S, Architect)

> *This street corridor is very full. Most of the street is used for selling goods, including rickshaws that gather at the exit and offer lifts.* (N, Employee)

Crowdedness is a determining factor of the identity of a corridor, which was revealed in a related study by Kusumowidagdo et al. (2015).

6.3.3 *Religious atmosphere*

Religious similarity is the presence of the same religious purpose in the different people who visit a place. Visitors to Sunan Ampel are predominantly Muslim. This religious similarity is one of the social factors that shapes its sense of place.

> *I'm familiar with this place because of the similarity of religion and the presence of people who attend religious tours.* (S, Architect)

Religion is a factor that can be considered similar to the cultural factor. A similarity of belief can provide the feeling of familiarity. The cultural factor is one that contributes to the sense of place (Hashemnezhad et al., 2013).

6.3.4 *Lifestyle attributes*

Lifestyle attributes in this study are fashion and appearance, which can encourage a sense of place being felt towards an area. Most visitors share a similar sense of Muslim fashion and style, considering this area as a religious space:

> *I feel I recognise this place because of the similarity of identity and physical appearance or style of fashion.* (N, Employee)

This Ampel religious area serves as a place that builds the identity of Muslim tourists. Davenport and Anderson (2005) state that places play a vital role in developing and maintaining the identities of the people.

6.3.5 *Interaction and activity features*

Activities and interactions are distinctive factors in both these corridors:

> *Many people who attend religious tours on their way to the mosque purchase religious ornaments, food, and souvenirs.* (M, Employee)

> *The corridors of the street towards the mosque and tomb of Sunan Ampel are crowded with people attending religious tours, while the Ampel Suci are most travelled by people who want to purchase Arabian souvenirs.* (D, University student)

This is consistent with previous studies on shopping streets, where active engagement is considered very influential. Active engagement can be seen in the direct communication and interaction between buyers and sellers, and the movement of pedestrians from one spot to another (Shamsuddin & Ujang, 2008).

Both street corridors studied are shopping areas that are suitable for all economic classes, ranging from low to medium income, because the price of goods are affordable and bargaining is welcomed. However, the Ampel Suci Corridor better accommodates shopping and bargaining activities between sellers and potential buyers because the corridor is comfortably wide with light circulation. Meanwhile, on the street corridor leading to the tomb and mosque of Sunan Ampel, visitors tend to directly purchase goods without spending much time in the seller's booths because of its heavy circulation:

> *Shopping at Ampel Suci is more fun because the corridor length is more comfortable and the circulation is not too dense, so it is possible to bargain for the goods.* (S, Architect)

The difference in the social factors that shape the sense of place for these two areas is found in the ethnicity factor. In Area A, most sellers are Maduranese, while the visitors share various ethnic backgrounds (dominated by Maduranese and Javanese) given that this area is the entrance of the Agung mosque and the tomb of Sunan Ampel. In Area B, most sellers are Arabian descendants, and the visitors also share various ethnic backgrounds (mostly Maduranese and Javanese):

> *I feel a new atmosphere in the Ampel Suci because most of the traders are Arabian descendants, while in the area of the street corridor to the mosque and tomb of Sunan Ampel, the traders and visitors there vary between Maduranese and Javanese.* (S, Architect)

Activity and interaction are also factors that highly shape the people–place relationship, as revealed in Low and Altman (1992) and Hashemnezhad et al. (2013). The findings of this study support these related studies.

7 CONCLUSION

The relationship types found between people and the Ampel Street Corridor area are biographical, spiritual, ideological, narrative, commodified and dependent.

The scales of sense of place that might be found in the (historic religious) Ampel area in the perception of visitors range from not having a sense of place, through knowledge of being located in the place, belonging to the place, being attached to the place, identifying with the goals of the place, and being involved in the place, to making sacrifices for a place.

The social aspects found in the Ampel area (in both areas studied) that developed the bond between visitors and these places are history and memory, crowdedness, religious atmosphere, lifestyle attributes, interaction and activity features. The unique social aspect in Area B, which becomes the differentiator, is the presence of Arabian merchants.

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Jammu—the city of temples

Chander M. Seth
INTACH, Jammu, Jammu and Kashmir, India

ABSTRACT: The city of Jammu is located on the banks of the river Tawi in a hilly mountainscape of the Himalayas. Jammu is an ancient city which was established by Raja (King) Jambulochan (1320–1290 BC) when he saw a wild goat and a lion drinking water together in one of the waterholes in the forest. He was so impressed with the coexistence of two rival species that he decided to set up a city at this site, where people of all faiths and religions could coexist peacefully and tolerate each other's customs and traditions. Over a period of many centuries, several kings who ruled this part of the country constructed temples on the bank of the river and inside the city. More than 100 such temples adorn the city, which has given it a unique name and identity as the "City of Temples in India". Jammu is also famous for its Bahu Fort, built by Raja Bahulochan and the royal Mubarakh Mandi Palace of the Dogra kings. These sites are designated as heritage buildings.

Jammu is the winter capital in the Jammu and Kashmir State of India. Its present population is about one million. Inhabitants of this city are descendants of an ancient martial tribe of Dogras and their spoken language is Dogri. Dogri is one of the Pahari (hilly) languages that has influence of Persian, Pushto and Devanagri languages because Jammu is located at the cross-roads of the ancient Silk Route, trading with central and west Asia.

All the temples of Jammu have unique architectural styles, describing the traditions and culture of its historical past. These temples are part and parcel of the daily life of its citizens and preserve the cultural heritage of the city. In the past, these temples were centres of social and religious activities. As Jammu is located in the driest part of the country, it has faced shortages of drinking water and so large ponds were constructed to collect rainwater. These ponds are unique sources of traditional knowledge for rain water harvesting and water conservation and are part of the city's heritage.

Jammu attracts between eight and ten million tourists every year. In this paper, the history of the city, its heritage and tourist value, including a description of the architecture of its temples, is discussed.

Keywords: Jammu; Raja Jambulochan; City of Temples, Bahu Fort; Palace of Dogra Kings; heritage buildings; Vastu_Shastra; INTACH; Nagara style

1 INTRODUCTION

The history of Jammu city can be traced from prehistoric times to the present day. Earlier literature and archaeological excavations have revealed that the city and its region have a history of about 5,600 years. Prehistoric sites at Manda, Akhnoor and other adjoining places provide evidence that Jammu city was a part of the Harappan civilisation (Sharma, 2007). Redware pottery, double spiral headed pins, bone arrow-heads, terracotta bangles and triangular terracotta cakes excavated from these sites, indicate the same culture and traditions in the Harappan cities. There is a well-documented historical record of Jammu rulers from 1600 BC to AD 1947, but with some missing links in-between (Sharma, 2007). After 1947, the State of Jammu and Kashmir became part of the Indian union, like all other princely states of India. At present, Jammu is part of Jammu and Kashmir (J&K) State, located in the Western Himalaya.

Figure 1. Map of Jammu and Kashmir State—India.

2 FOUNDER OF THE CITY

Raja Maldev, fourth King of the Dev dynasty, ruled Jammu from AD 1361 to 1400 (Goswami, 2015) and is believed to be the founder of present day Jammu city. He was a very tall and powerful king of his times. Several legends and ballads in the Dogri language exist in local folk art and depict his bravery, administration and governance. Raja Maldev established his headquarters at Purani Mnadi in the centre of the city. From 1400 to 1733, ten descendants of Maldev ruled the territory of Jammu. The eleventh ruler of the Maldev dynasty was Raja Ranjit Dev, who ruled from 1733 to 1782. He was known as an apostle of justice, chivalry and administration. He was the most secular and religiously tolerant king. His period is remembered as an era of prosperity, peace and coexistence. In his time, Jammu was the largest state in northern India.

3 THE PERIOD OF THE DOGRA KINGS

The Dogra Jamwal Kings ruled the state for a period of about 100 years from AD 1847 to 1947 (Charak, 1985). Maharaja Gulab Singh was the founder of Dogra rule and extended his boundaries to enclose the whole of Jammu, Kashmir, Ladakh and Gilgit. It was during the Dogra period that several forts, palaces, temples, educational institutions, hospitals, museums and library buildings were constructed with unique architecture and art. Although this had influence of Mughal, Rajasthani, Kashmiri and British Baroque architecture, it retained the flavour of local Dogra art and architecture. Ganhar (1973) described the Dogras as, "deeply devoted to their land and especially their places of worship, around which they have woven a variegated tapestry of myth and legend." Their rich folklores and achievements in artistic expression were inspired by their devotion to religion and have become part of the vocabulary of Dogra art and architecture.

All the earlier rulers of Jammu from 1600 BC to AD 1947 contributed to the art and architecture of the region, giving it a distinctive place in the architectural landscape of the country.

4 EVOLUTION OF TOWN PLANNING IN JAMMU CITY

The town planning of Jammu city started at the time of Raja Jambulochan (1320–1290 BC) and continued throughout the reigns of Raja Maldev (1361–1400), Maharaja Ranjit Dev (1733–1782) and the Dogra kings (1847–1947). From the outset, all rajas, maharajas and kings contributed to the city's planning, layout and architecture in several layers and phases. In studying the planning of the city, it appears that the city's art and architecture has evolved and developed over a period of time. It has been influenced by the art and architecture of mainland India, blended with local materials, traditions, culture and traditional knowledge of times, and also based on the ancient Indian science of architecture, "*Vastu Shastra*" (Vastu Shastra, Google, 2017).

The city of Jammu was established by Raja Jambulochan, after whom the city derives its name, on a hilly slope of the Shiwalik mountain range (Figure 2a). The site was ideal from a defence point of view; on the south-eastern side flows the river Tawi, also called Suryaputri, and on the north side is the naturally fortified Ramnagar Shiwalik mountain range (Drew, 1875). The area was rich in forests, wildlife and sufficient water available from the river Tawi. The site had a typical tropical climate with hot summers and cool winters. On the southern side of city are the plains of the Punjab and on the northern side the undulating Shiwalik hills create a natural amphitheatre with a high-rise backdrop of the Trikuta hills.

The layout of Jammu indicates that while planning the city, the natural drainage system of the hilly slopes, access to the river Tawi, creation of water bodies (locally called *talabs*), parks, temples/- shrines and the security of the city, was kept in view. The city was basically developed as a pedestrian city with small streets, locally called *galis* or *kuchas* connected at *chaougans* with *mohallas* and *ahatas*. The city had several *kuchas* named after prominent persons from those streets (Mangotra, 2013). Zonation of the city into *mohallas* was well planned and there are 11 main *nallahs* (city drains) which drain into the river Tawi on the eastern and southern slopes. Alongwith these *nallahs,* there were 11 *dhakis* (hilly stone/brick pedestrian paths) for the movement of the population from city to river and back. Dhaki of Peer Mitha, Saranja Dhaki and Naina de Dakhi are some that still exist today. On the eastern and northern sides, the city is enclosed by two wildlife sanctuaries, Ramnagar and Bahu. These protected areas help in water conservation and recharging of the river water, as well as contributing to the environment of the city. Palaces and forts were located at the commanding heights of the city at the Manda hills and in earlier times were located in the centre of the city at Purani Mandi and later shifted to Mubarakh Mandi. A *mandi* is a place where Rajputs used to reside. There is no record available to show whether the city was developed as a planned city. However, one copy of the city map is available in the Dogra Art Museum in Jammu and the physical evidence of the city indicates that it was well planned architecturally

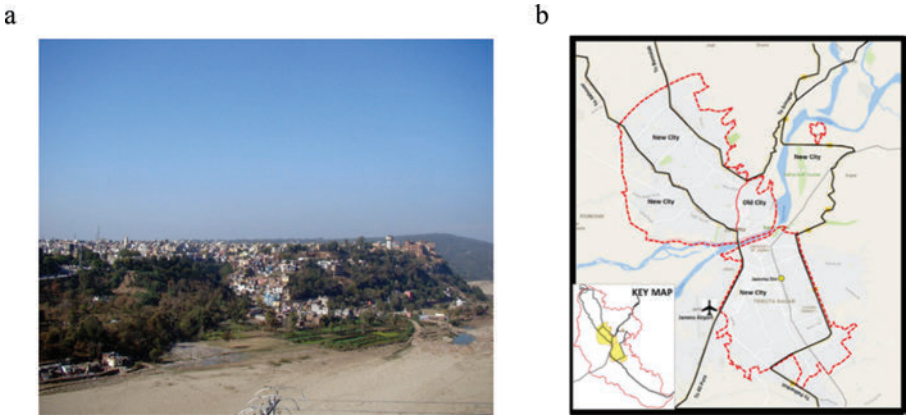

Figure 2. (a) Old city of Jammu, (b) Jammu city master plan.

Figure 3. Old city map 1880–1890 AD.

and developed on the principles of *Vastu Shastra*. The original map printed on cloth in AD 1880, can be seen in the National Museum in Delhi (see Figure 3).

Study of this map indicates that Jammu was a walled city, fortified on three sides, starting from the western side to the southern side and terminating on the eastern side (Chaudhary, 2007). On the northern side, the Manda hills provided natural fortification. The city was accessed from four main gates (locally called *deodis*). These *deodis* were named as Jogi Gate, Mahespura Gate, Gumat Gate and Dennis Gate. Mubarakh Mandi, the seat of governance, was the iconic building of the City, giving it a distinctive identity and characteristic. Mubarakh Mandi and the palaces were surrounded by the buildings of the ministers (*wazirs*) and other high officials of the kings. This was followed by *mohallas* (zones) comprising homogeneous populations of traders, businessmen, skilled workers and other service providing classes at the outer periphery of the city. These *mohallas* were named according to their inhabitants; thus, Afghan Mohalla where Afghans settled, Jullaka Mohalla where the *jullayas* (weavers) settled, Sarajan Mohalla where leather tanners resided, Khadika Da Mohalla, Jain Mohalla (goldsmiths) and bazaars (shopping streets) where the Jains settled, Kachi Chawani where the Army was based, Peer Mitha Mohalla after the Sufi saint Peer Mitha who probably came from Iran and settled here, and *mohallas* of other communities. Prominent bazaars of Jammu city included Jain Bazar where only goldsmiths had their shops, Lakhdatta Bazar and Moti Bazar which had utensil makers (*thatheray*), Kanak Mandi, which had only grain merchants, and Urdu Bazar, which had only entertaining hubs or *kothas*. Many *talabs* were constructed in the city for rain water harvesting to meet the city's requirement. These *talabs* (ponds) were constructed adjacent to temples and shrines. Some of the important *talabs* were Rani Da Talab, Raghunath Mandir Tank, Khadika da Talab, and the *talab* near Gada Dhar temple. All these *talabs* have now been filled in except for that of Raghunath Mandir. The design of these ponds were unique architecturally. The devotional art and architecture of the city can be seen in the temples which have been built all over the city over a period of time (Sharma, 2007). Wall paintings are typical Dogra art of the region. In addition to improving the environment of the city, the rulers of that time introduced several plant species, which had three properties: fragrance, shade and fruits for birds. Because, in summer the city's temperature reaches as high as 40–45°C, plant species such as *Magnolia grandiflora, Jasminum sambac* (*motia*), *Cestrum nocturnum* (*rat ki rani*) and *Mimusops elangi* (*maulseri*) were introduced. Indigenous tree species like *Ficus benghalensis* (*banyan*) and *Ficus religiosa* (*peepal*) were planted alongside roads, in temples and around ponds. To provide ice—cold water from the river Chenab, the rajas of that time constructed the 30 km Ranbir Canal up-to the city for irrigation, navigation, electricity generation and recreation purposes. The detailed layout of the city, therefore, quite clearly establishes that the old city was very much planned, keeping in view all the architectural and town planning requirements of the city and its people, based on the five principles of the science of *Vastu Shastra*.

Modern town planning of Jammu started in 1957. The third Master Plan (2021–2032) covers an area of 650 km^2 (see Figure 2b) (Jammu Development Authority, 2016). The city is developing very fast and is becoming cosmopolitan with the new digital culture, modern western fashions and life style, and high living standards. The city's old ethos, values, architecture and art is changing with the times and the westernisation of society. The city is also still evolving, with a new composite culture and architectural trends. Its growth is inclusive, equitable and organic. Evolution is the law of nature and the city continues to evolve with the new ideas, scientific and technical knowledge, innovations and ethos of a multicultural cosmopolitan society (Singh, 2014).

5 ART AND ARCHITECTURE OF FORTS, PALACES AND TEMPLES

The Indian National Trust for Art and Cultural Heritage (INTACH) has listed 12 major temples and 158 heritage structures in Jammu city (cited in Agrawal & Gupta, 2009). It is not possible to discuss the art and architecture of each and every building in this paper, but representative structures of a few iconic heritage buildings such as the Mubarakh Mandi Complex, Amar Singh Palace, Bahu Fort, Raghunath Temple and Ranbireshwar Temple have been selected to represent the typical Dogra art and architecture of the city. These heritage buildings are located in old Jammu city (see, Figure 4).

5.1 *Palaces and forts*

5.1.1 *Royal Mubarakh Mandi Complex*

The historic Mubarakh Mandi Complex in Jammu city comprises the royal palaces and the secretariat of the Dogra Kings of J & K State (Chaudhary, 2008). In 2005, due to its deteriorating condition, the Archives, Archaeology and Museums Department declared the complex a protected monument, under the provisions of the J&K Ancient Monuments Preservation Act 1977. In 2006, J&K State set up an autonomous body called the - "Mubarakh Mandi Heritage Society" - to ensure its conservation, protection and restoration work by the Archaeological Survey of India is underway. Draft Project Report (DPR) for restoration was prepared by INTACH in 2007 (Agrawal & Gupta, 2009).

There are 25 components of the Mubarakh Mandi Complex. These are: Gol Ghar, Rani Charak's Mahal, Rani Kathar's Mahal, Rani Bandral's Mahal, Mahal of the Ranis of Raja Amar Singh, Rani Guleri's Mahal, Royal Courts building, Raja Ram Singh's Palace, Heritage

Figure 4. Location map of heritage sites in the old city (Google, 2017).

structures of Niki Deodi, Mahal of the Ranis of Raja Ram Singh, Marble Hall, Smadhi of Baba Ragho, Pink Hall, Baddi Deodi, Darbar Hall, Army Headquarters and Foreign Office, Main Deodi, Old Magistrate Complex, Raja Amar Singh's Palace, Toshakhana Complex, Gada Dhar Temple, Old Pond, Gateway towards Panjtirthi, Darbar-e-Aam and Reserve Treasury Building. Mubarakh Mandi—covers an area of 50,000 m^2 or ~12.5 acres, and the built-up area is 4,800 m^2. According to one estimate, the total area is 120 *kanal* and 16 *marlas*. The princely state of Jammu and Kashmir enjoyed a unique political position at the national and international level and Mubarakh Mandi signified the power centre of this princely state, a political and administrative headquarters that saw a blending of native and international influences on a regular basis in almost all domains. Similarly, the architecture which emerged at Mubarakh Mandi was a unique provincial style that amalgamated colonial influences with native building traditions, manifested in the erection of buildings such as the Darbar Hall. Developed in stages over a century, several layers of construction, attributable to different Dogra rulers are identifiable in the complex and provide its present shape. There is an extensive vocabulary of semi-circular and Gothic arches with domes inspired by British colonial Baroque architecture co-existing with Mughal—inspired multi-cusp arches and *jharokhas* (balconies). There is also an influence from the Rajasthan style of architecture. Use of river pebbles (*gittian*) in decoration on walls and pillars is a local innovation.

In the present state of Jammu and Kashmir, the Jammu region is culturally very distinct from those of Kashmir and Ladakh because of their separate historical and socio-cultural identities. Mubarakh Mandi, despite the melting pot of several influences, is the highest embodiment of Dogra art and architecture in the Jammu region and a source of pride for the local community of Jammu city.

According to historians, construction of the Mubarakh Mandi was started in the period of Raja Dhruv Dev in 1710 when he shifted his office and residence from Purani Mandi to Darbar Gad, later named as Mubarakh Mandi. This building was constructed on a high plateau overlooking the river Tawi on the eastern edge of Jammu city. The architecture was in the Dogra Pahari style. Its outer walls towards the river Tawi were very strongly supported with *diwalgirs,* some walls are as thick as 15 ft. During his reign, these buildings were called Darbar Gad. His son Ranjit Dev (1753–1781) added more structures to this building. In 1822, Gulab Singh was made Raja of Jammu and once again, after a gap of six years, Jammu city came under the Dogra rulers, when he and his family, came to Darbar Gad. Further construction and development of Mubarakh Mandi took place during 100 years of Dogra rule. The largest contribution to Mubarakh Mandi was in the period of Maharaja Ranbir Singh (1857–1885). Maharaja Partap Singh (1885–1925) constructed Rani Charak Palace and some other official buildings. There was a great fire in 1898 in which Dewan Hall, the Governor's office, the Foreign office and Darbar Hall were burnt and destroyed. British Superintendent Engineer, Alex Atkinson, was engaged by Maharaja Partap Singh to redesign and reconstruct the damaged buildings (Atkinson, 1898). Work on new structures was started in 1913 and continued until 1925 when his son Maharaja Hari Singh (1925–1947) became king.

Originally, Mubarakh Mandi had four *ahatas* (parts) named after the sons of Raja Dhruv Dev. These were Ahata Balwant Dev, Ahata Braj Dev, Ahata Darbar Gad and Ahata Dhansar Dev. Later on, Maharaja Gulab Singh and his descendants added to and expanded the buildings of Mubarakh Mandi (Nirmohi, 2016).

Construction of the Mubarakh Mandi Complex is based on the courtyard style of Indian architecture, with open spaces in the centre surrounded by palaces and official buildings. Entrance to the Mubarakh Mandi Complex was from four double-storey gates or *deodis*. These gates were the Main Deodi on the western side towards the city, connecting Jain Bazar and Pucca Danga, Badi Deodi on the eastern side connecting the Palaces of Rajas and Ranis. The *deodi* towards the northern side opens towards Panjtirthi for officials (*darbaris*) of the Maharaja and *deodi* towards the southern side connected Pacci Dhaki Mohalla with the palace. The doors of the *deodi* were so big that even elephants could enter the palace. Shobha *yatras* (ceremonies) of Maharaja Ranbir Singh and Maharaja Partap Singh would emerge through this *deodi*. The door of this *deodi* had small window doors, which were used in emergency. This *deodi* had Rajasthani—style chhajjas (eaves) and *chattris* (cupolas). In front

of the *deodi* an image of the sun had been engraved. The second storey of the *deodi* was occupied by the sentries who would keep watch on the public entering the palace. Important guests were brought through this gate. On the southern side of central courtyard was the Foreign Office and Army Headquarters, one above the other. Grey Hall building adjoins this building towards the southern side of the courtyard and was used for official meetings. On the eastern side, small gates give entry into Gol Ghar. This was a four-storeyed structure with three domes on the top. These domes were visible from a distance and were a great attraction for the Maharajas. In 1985, the eastern portion of the complex was burnt and great damage occurred to the Gol Ghar building and a great heritage was lost. Of the three domes, only two are still intact. The rest of the buildings from inside was totally burnt and damaged. On the eastern side, towards the river Tawi, the Mahals of Rani Kathar, Rani Bandrali Mahal, Sheesh Mahal, Toshakhana, Rani Charak's Mahal, Mahals of Ranis of Raja Amar Singh, Mahal of Rani's of Raja Ram Singh and Rani Guleri's Mahal were located. This area was called as *zanana* (harem) and no male was allowed. Entrance was only through Niki Deodi. Facing towards the courtyard were Marble Hall and Pink Hall. Adjoining this building was Gadvai Khanna (the pharmacy) and the Royal Courts building. On the northern side of the complex was Raja Ram Singh's Palace. On the western side of the courtyard were the buildings of Raja Amar Singh's Palace, Toshakhana and the Reserve Treasury. In the centre of the complex was the Raj Thada (the royal platform), made of marble, which has now been damaged. This platform was surrounded by a beautiful park with fountains.

The construction material used was locally made bricks and tiles, stone bricks from a place near Ramnagar, slate, wood and red-stone from Rajasthan. Local *gittian* (pebbles) from river bed, *surkhi* (crushed bricks) and *chuna* (lime) was also used (Chaudhary & Katoch, 2008). The *jarokhas* and *chattris* are in a typical Rajasthani style. In some places, terracotta *jallis* (trellis) are used on the roofs. The Army headquarters and Foreign Office (see Figure 5a) is of the British Baroque style, with iron grilles and other material from England. Three domes with a big clock in the central dome are, again, a Baroque style of architecture. Many pillars and front portions of the veranda have engraved and sculpted floral images. In these buildings, Kashmiri art such as *khatambandi* (marquetry) and papier-mache are in the ceilings. All papier-mache ceilings are painted with decorative work. The walls and pillars inside are decorated with miniature floral wall paintings and themes drawn from epic Ramayana and Mahabharata stories (Figure 5b). In the old buildings towards the eastern side, the flooring was made of wooden planks with a layer of earthen pitchers and again covered with wooden planks and slates. This unique style is a local architectural innovation for keeping rooms cool during the summer months. Such flooring could act like a thermostat both in summer and winter. In Sheesh Mahal only coloured cut glass was used. Perhaps this was a later addition on the pattern of several Rajasthani and Mughul palaces in India. Another local architectural innovation was the design of stairs. These stairs were of different sizes for people of different ages and for different purposes, and were mainly made of wood and stone slabs.

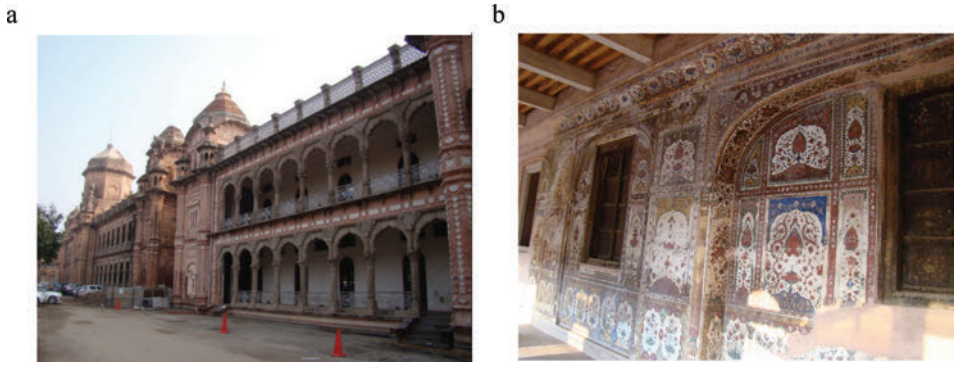

Figure 5. (a) Foreign Office, and Army Headquarters, (b) Wall paintings.

Small pebbles (*gittian*) decorate pillars, walls and stone plates in the foundation again, a local architectural innovation.

5.1.2 *Amar Mahal*

Amar Mahal was constructed by Raja Amar Singh in 1892. The architect of this beautiful palace was French. He could not complete this palace, perhaps, because of the sudden death of Raja Amar Singh in 1908, and from the outside it appears that only a half portion has been constructed. It was built on the topmost northern part of the city, adjoining the Manda hills and facing the river Tawi, occupying a commanding position from all sides. The architecture of the building is a replica of the French forts (chateaux) and farm—houses of the time. Katoch (2012) observes that this palace is greatly influenced by the Queen Anne style of architecture. The palace is a three-storeyed building with basement. The plan is rectangular, and 150 ft. in length, 100 ft. in width and 50 ft. in elevation. The plinth of the building is 1 m high. The building is open on all sides with lawns in front and to the rear to allow sufficient light and air. The walls are thick to maintain the temperature of the rooms from inside in both winter and summer. Burnt bricks were used in the construction. Mouldings of sandstone adorn the building in different places. The front façade is marked by a series of semicircular arches running all along the corridor on the ground floor, and rectangular/wheel/bay windows on the first and second floors (see Figure 6a). The rear façade of the building is marked by simple arches running all along the veranda on the ground floor, and bay and French windows with a small balcony on the first floor. On the second floor, windows are bay windows with triangular pediments. An outer veranda is covered with sloping ridged—tin sheets resting on a wooden framework. An arcade of simple arches running all along the veranda is the most attractive structural feature, which enhances the aesthetics of the façade of the building. The pillars of these arches are decorated with various floral designs and stone inlay work (Figure 6b). The roof was made of slate, which in 1955 was changed to steel sheets to protect it from rain and high-speed winds. The double column supporting the wooden framework stands on a simplified brick pedestal emulating the Greco-Roman style. The columns used in the building are of a composite order. The art work is local Dogra style with paintings of lotus flowers, birds and animals. Unfortunately, Raja Ram Singh did not use this palace as his residence because of his sudden death in 1908. At present the palace, has been converted into a museum that thousands of tourists visit every day, and the library is used by scholars from India and abroad.

5.1.3 *Bahu Fort and palace*

As discussed earlier, Raja Bahulochan ruled Jammu and its adjoining areas from 1350 to 1320 BC. He constructed Bahu Fort on the right bank of the river Tawi. After his death, his brother Raja Jambolochan, established the city of Jammu opposite Bahu Fort and town.

Figure 6. (a) Front façade of Amar Mahal, (b) Use of local material and designs.

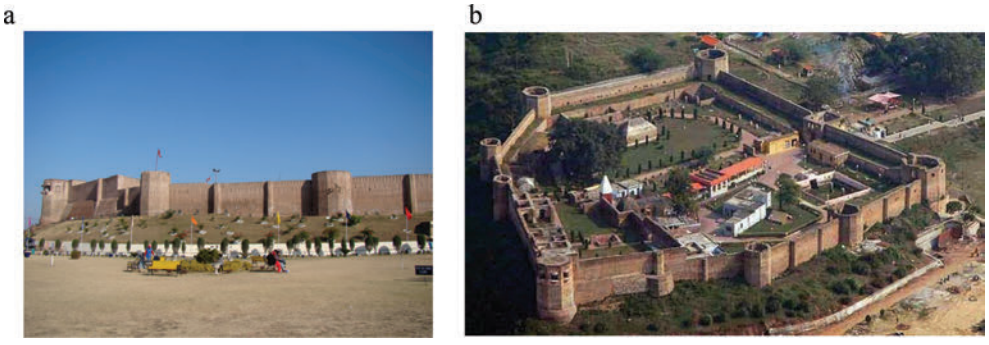

Figure 7. (a) Bahu Fort and palace, (b) Aerial view of Bahu Fort.

Bahu Fort was constructed in the era of Raja Bahulochan about 3000 years ago (Nirmohi, 2016). The fort has one entrance gate or *deodi* which is two storeys high and is covered from inside. The *deodi* opens into a large central courtyard with a central passage which leads to the Temple of Mata Kali. The fort is divided into two parts. On the eastern side are confinement cells for prisoners, rooms and lawns, and on the western side is a pond in the centre, which is surrounded by two-storey buildings and rooms. This fort and the palace inside were constructed by several kings over a period of time (see Figure 7b).

The fort was damaged by Sikh rulers of Punjab (Goswami & Gupta, 2015) and was later repaired and reconstructed by Maharaja Gulab Singh when he became ruler of Jammu. Bahu Fort and Mubarkh Mandi are opposite one another on the right and the left banks of the river Tawi. One part of the palace is called Old Mahal and another part New Mahal (palace). All rooms of the palace open onto an internal courtyard. Arches of veranda are of Mughal style, perhaps constructed in the later Mughal period. The palace had 12 rooms. Its roof was made of local wooden sleepers as beams, covered with wooden planks. The construction materials used were local stone bricks and *chuna surkhi* mortar. In some parts, the bricks covered with *chuna surekhi* plaster. All rooms had *bukharis* (heaters) and small lamp ledges (*taukdas*) where oil lamps were burnt for lighting purposes. The walls of these palaces were adorned with beautiful wall paintings on local themes. These paintings were made directly on the plaster of the walls using natural colours. From the outside, the palace is surrounded by fortified high-rise walls (see Figure 7a). The roof of the rooms was used by soldiers for watch, ward and security of the palace. This fort was very strong and was used for defensive purposes.

The fort and palace have been notified as a protected monument by the J&K government and conservation and restoration works were undertaken by the Archives and Jammu Development Authority under the supervision of Mr. K.A. Qadri, then Director General of Archives and Archaeology department in 2007.

5.2 *Temples and shrines*

Janmu city has a number of temples and shrines constructed at different points in history (Manohar, 1971). Some of the main temples are Raghunath Temple, Shri Ranbireshwar Temple, Panchbakhtar Temple (also known as Rupaywalla Temple), Diwan Mandir, Mahamaya Temple, Maha Lakshmi Temple (Pacca Danga), Radha Krishna Temple (Rani Park), Hanuman Mandir (Moti Bazar), Mandir Mata Chint—Purni (Dhounthali) and Rani Mandir (Gumat), (Shakar, 2012). Because people from different faiths made Jammu city their home, shrines of Sufi saints have also been constructed. Gurdwara of the Sikh saints have also been constructed, as have Christian churches. There are cave temples too. Almost all 11 *dhakis* from the river Tawi to the city had temples. The art and architecture of some of these temples have been discussed in this paper and gives Jammu its unique name of - "City of Temples" -.

5.2.1 *Raghunath temple*

Raghunath Temple Complex is one of the biggest complexes of several temples in one place (Ganhar, 1973). Raghunath Temple was constructed in the time of Maharaja Gulab Singh in 1835 and was completed 25 years later in 1860 in the time of his son Maharaja Ranbir Singh. At the time of construction, the temple complex was located on the periphery of the city at the southern end below Raghunath Bazar. It is now in the centre of the city. The architecture of the temple (see Figure 8a) is typical of the northern Indian or Nagara style (Manohar, 1971). The manual of the Nagara style of temple architecture, *Brihat Samhita,* written by Varahamihira in the 6th century and describes the design and construction of the Nagara style of Hindu temples (Brown, 2014). This style has two distinct features. In plan, the temple is square with a number of graduated projections in the middle of each side, giving a cruciform shape with a number of re-entrant angles on each side. In elevation, a *shikhara* (steeple) gradually inclines inwards in a convex curve (like a beehive) using a concentric rotating square and circle principle. The temple is dedicated to Lord Rama, who is also called Raghunath. This temple has a quadrangular platform on which the main temple is constructed with an entrance gate, *mandapa* (prayer hall) and *garbhagriha* (inner most sanctum), where *murtis* (stautes) of Lord Ram, Laksmana and Sita are installed. Inside the walls of *garbhagriha* are covered with gold-plated sheets on three sides. The *garbhagriha* is surrounded by parikrama (also called pradakshina or devotional walkways). The *shikhara* of all temples are golden in colour and can be seen from any part of the city. On top of the *shikhara* are *kalasha*. The parikrima is surrounded by many galleries, which houses *saligrams* (ammonites) brought from the Narbada river in Madhya Pradesh. The outer side of the temple contains small temples which depict the various avatars of Lord Vishnu. On the northern side, there is a large water tank to meet the needs of the Temple and for the public (in those early days). The temple complex also has a big library and a school for Vedic studies. On the eastern side of the complex is Hanuman ji Mandir, which is on the left side of the entrance gate. On the right side is the temple of Shiva with crystal *Shivling* (symbol of Shiva). All temples in the complex are constructed in Nagara style of architecture. There are 17 big and small temples in the complex, dedicated to Hindu gods and goddesses (Shakar, 2012). There was another pond outside the temple on southern side in Kaleeth Mohalla to meet the needs of devotees and the students in the hostels. This pond is now filled in and a shopping market has been constructed on its site.

5.2.2 *Shri Ranbireshwar temple*

This temple is located near the central part of city and faces west. The temple is also constructed in the Nagara style of architecture with a two-storeyed raised platform (see Figure 8b). There is a flight of stairs to reach the main temple above the platform. The platform is constructed on the rooms that were used for accommodation of pilgrims (*yatris*), *pujaris* (temple priests) and other staff. It also had a kitchen and toilets. This temple has one

Figure 8. (a) Raghunath temple, (b) Shri Ranbireshwar temple.

of the biggest *lingams* of Lord Shiva in black marble (7 ft high). On either sides of this *lingam* are five small *lingams* each two foot in height. Outside the main entrance of the temple is a sculpture of a Nandi (a sacred bull) facing Lord Shiva. Nandi is companion of Shiva. This temple was constructed by Maharaja Ranbir Singh in 1873 (Ganhar, 1973). On the inner walls of the temple, several paintings of Lord Shiva and stories from Shiv Puran have been written. On top of the *shikhara* there are four big golden-plated *kalasha*.

5.2.3 *Mahamaya temple*

This ancient temple (see Figure 9) was built on top of the Mahamaya Hills and dedicated to the goddess Mahamaya. It overlooks the city of Jammu and the river Tawi at a short distance from Bahu Fort. Historians believe that this temple was perhaps built in the ancient city of Dhara Nagri in the 15th century (Goswami & Gupta, 2015). Today, no city exists and the temple is surrounded by thick forest. It is thought that the city was devastated due to some unknown natural calamity (Sharma, 2007) but the temple has survived to this day. At this site, some old fossils, terracotta utensils and images have been recovered from the ruins around the temple. Initially, the temple was a very small structure with a Mahamaya deity inside. The temple was repaired at the time of the second Dogra Maharaja, Ranbir Singh, and new additions are still being made by local *pujaris* and the Mahamaya Temple trust.

5.3 *Cultural centres, archives, library and museums*

At present, there are several cultural centres in Jammu city that preserve and promote the art, architecture and cultural identity of the city and the region. Four government organisations including the Academy of Art, Culture and Languages, Kala Kendra and the Institute of Music and Fine Arts are helping in the education and promotion of preservation of art, culture and architecture of the region and state. Department of Museology University of Jammu and Dogri Sanstha Jammu are also promoting cultural heritage of Jammu. The Department of Archives, Archaeology and Museums is responsible for the identification, conservation and restoration of old heritage structures, manuscripts, historical books and records. In addition, the Archaeological Survey of India is also engaged in excavations, preservation and restoration of sites of archaeological importance. In the modern architectural landscape of Jammu, it is expected that such institutions will find space in the upcoming Jammu Master Plan and the Smart City Plan for the future, (Jammu Municipal Corporation, 2016).

Figure 9. Mahamaya temple.

6 CONCLUSION

From the long history of Jammu, it appears that the layout plan of old Jammu was based on the Indian *Vastu Shastra*, an ancient science of architecture and town Planning. Its palaces and forts indicate influences of local Dogra, Rajasthani, Mughal, Kashmiri, French and British Baroque architecture. Wall paintings are in the Basholi miniature painting style. Due to the number of temples and shrines, Jammu is rightly named as the - "City of Temples" - from ancient times. Temple architecture is in the Indian Nagara style. The city is expanding at a very fast pace and new Master Plans are being framed by the government. New colonies are being planned with good road networks, parks and drainage systems. High rise buildings are being constructed. The architectural landscape is changing rapidly from the old style to modern designs and styles. The state government is in the process of upgrading the city to a Smart City, keeping in view the modern concepts of architecture and also preserving its existing old Dogra art and architectural heritage.

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Nature and physical configuration: A study of topographical influences on the physical configuration of mountain settlements in the Iraqi Kurdistan region

Hoshyar Qadir Rasul
Engineering Technical College, Sulaimani Polytechnic University (SPU), Kurdistan Region, Iraq

A.I. Ahmed
Architectural Engineer, Al-Isra'a Engineering Co., Kurdistan Region, Iraq

ABSTRACT: The art of architecture is a result of a smooth linkage and relationship between building and nature. Several parameters influencing architecture, formed by topographical factors, contribute in determining the form of architecture, through influences upon buildings and their locations as well. This study will explain the influences of topographical factors that are defined as basic variables in the physical configuration of residential buildings. In this sense, the research problem consists of the lack of knowledge regarding the mechanisms of topographical influences on the physical configuration of human settlements, specifically in mountainous areas. The goals of this research were addressed by exploring the nature of topographical influences on physical configuration, identifying mechanisms of configuration according to the topography of the site, and following a descriptive analytical methodology. The study assumed that topography operates effectively and directly on the physical configuration of human settlements, especially in mountainous areas.

Keywords: architecture; building and nature; residential buildings; human settlements; topographical influences

1 THE NATURAL AND BUILT ENVIRONMENTS

The natural environment, with all its elements and its components, has created a persistent challenge to human presence and its activities, growth and evolution. This challenge presents as a factor on the formation of physical and economic environments for human communities around the world. The natural environment consists of climate, with all its elements, and topography, inclusive of soil, lithosphere and hydrosphere, with all its surface water and groundwater contents (al-Shami, 1999). The elements of the natural environment do not act independently because they constitute an integrated system. However, the built environment is an expression of culture in material form and the land upon which cities are built is a dynamic surface manipulated to enrich urban culture with varying degrees of success (Davids, 2016). Therefore, these two environments (natural and built environment) have been complicated, integrated and matched with each other. This fact has been consistently demonstrated, both historically and in recent times too.

2 HUMAN SETTLEMENTS: SHAPES AND LOCATIONS

Human settlement locations have been considered to be distinct decisions in the process of planning, especially in mountainous areas where strategic location become as a limited factor for development of any settlement in the future. Shapes and locations of settlements in mountainous areas have been determined as follows:

1. Settlements inside mountains: settlements that take a medium location between mountain chains, in valleys or in plains;
2. Settlements in the foothills of mountains: settlements in the foothills or at the bottom of mountains; and
3. Settlements in front of mountains: settlements on flat plain areas facing mountains (Al-Janabi, 1987).

The natural factors impacting spatial or locational indicators due to specific factors are described in subsequent sections.

2.1 *Topography impacts*

The factor of topography has two main influences. The first is focused, indirectly, on climate elements and the second has a main and direct impact on topography itself (Golany, 1978). Topography represents one of the most important factors influencing the direction of expansion in mountainous regions. Amedi, in the Kurdistan Region of Iraq, is among the most unique examples that portray this impact, as shown in Figure 1. The city is located on the semi-flat top of a mountain and is surrounded by sharp drops in all directions which leads to the impossibility of expansion in any direction (Regional Planning Board, 1989).

2.2 *Impacts of climatic factor*

The great variations in the characteristics of local climate, resulting from variations in topography, restrict possibilities for any site. To select the most appropriate choice, the impact of each element in this process must be identified.

Contour lines, for instance, facilitate the determination of circulation paths so that the form of the physical fabric and the type of settlement are determined as well. When the slope percentage range is between 4 and 10, a parallel or perpendicular form of settlement should be adopted. Alternatively, when the slope percentage range is between 10 and 20, the form should follow the contour lines. When the slop percentage exceeds 20%, emerging the certain type will be necessary (Rasul, 1996).

Figure 1. Amedi settlement—views from two distances and locations.

3 CONFIGURATION IN ARCHITECTURE

In addition, there exists a process, initiated by designers, that uses visual vocabulary as an essential element and a principle of design to create masses and spaces in a certain system. Physical or architectural configuration begins with exploring the sensual characteristics of various shapes and relationships, either at the horizontal level or in volumetric composition. This may include some configured values that govern the relationships between masses and architectural spaces (Ibrahim, 1987). Thus, configuration is defined as formulating the shape in a way that produces new features and relationships.

3.1 *Principles of architectural configuration*

A principle of configuration is the process of organising various elements in forms and images. On a separate note, it is a process of collecting visual elements within a certain order to achieve coherent work and serves the purpose of a particular and dynamic goal. This plan of regulation and organisation determines which way is better in gathering and combining elements to create a certain effect and distinguish one artistic work from another (Riham, 2006). Proper configuration requires an integrated and coherent unit of production for different elements. In other words, contradiction becomes linked and creates harmonious conditions with a defined method.

4 CONFIGURATION IN URBAN DESIGN

Configuration in 'urban design' can be described as the art of creating visual unity between elements of the city. Urban design depends on the organisation of material components of the physical environment. Therefore, it is considered to be a formative art related to the appearance of things, aesthetics, and expressive and symbolic values, as opposed to a science concerned with the functionality and efficiency of work performance in equal measure (Al-Hachim, 1993).

As in architectural configuration, a number of concepts govern urban design configuration in order to deliver perceptible values. According to Zevi, configuration is applicable through a special vocabulary, such as identification, contradiction, symmetry, privacy, size, light, shade and shadow, and rhythms of space and mass (Moughtin, 1992). Alongside materials, methods of construction and technology, changes in design patterns owing to various factors including climate and topography play a significant role in the configuration of a settlement and its organisation.

Apart from topographical and environmental factors, socio-economic issues, such as the lifestyle of the locals, safety concerns, privacy, and construction and material limitations, play a major role in affecting the morphology of rural settlements (Philokyprou et al., 2015). Rapaport (1969) believed that socio cultural and natural factors were the main basis for shaping the built environment; other factors were secondary or adjustable. Rapaport (1969) saw that traditional housing is one of the most successful solutions to applying, maintaining and supporting values and social relations; he deemed it possible through the organisation and configuration of modalities. Rapaport (1969) also found that expression includes all social, cultural and symbolic manifestations that have an impact on form and constitute a given symbolic nature.

5 THE RELATIONSHIP BETWEEN TOPOGRAPHY AND PHYSICAL CONFIGURATION

Multiple instances exist where the topography of a site is a basis for comparison to establish the degree of harmonisation and appropriateness (Dieter, 1980). The belief in a humane settlement, especially in rural areas, prepares the ground for beneficial gain from nature and

Figure 2. (a) Architecture as a man-made creation (bringing nature to perfection); (b) Architecture as a part of nature—Palangan village in Kurdistan Province, Iran.

defines a clear relationship between nature and architecture on the basis of two main aspects: architecture as a part of nature and architecture as a man-made creation in nature.

Architecture requires compatibility and harmony with nature (Figure 2a), especially because architecture, as a man-made creation within nature, expects perfection (Figure 2b). In other words, harmony with nature, and perfection within nature, are two entirely reasonable architectural approaches. In the traditional view, sustainability is achieved through a harmonious association with nature and perfect alignment with topography (Adeli & Abbasi, 2015).

These approaches have been adopted in practice through various mechanisms, such as correspondence, similarity and discord, which are also representative of strategies followed by architects in their daily activities.

5.1 *Configuration of traditional settlements*

Traditional settlements have always been related to specific localities where meaningful correspondences between climatic conditions take place, and topography and settlement morphology coexist. Different surface reliefs generate different physical forms and growth patterns in rural settlements. For instance, settlements in a valley usually take linear forms parallel to the direction of the land contours. Settlements on a plain may take on the form of a dense cluster or an enclosure, while settlements on a hill often have the form of concentric or longitudinal clusters forming a series of semi-circular terraces perpendicular to the slope (Philokyprou et al., 2015).

6 CASE STUDY

The Iraqi Kurdistan region is famous for its distinct location and topography and this is due to geological phases that have occurred through sequential historical periods. The complexity of topography has increased and is oriented towards the north-east from the south-west. As a result, two distinct regions exist and are referred to as the mountainous and semi-mountainous regions.

The Tawella settlement area has been selected as a case study for this paper. It is classified as lying within the mountainous region for the following reasons:

– its distinct topography;
– its distinct climate, categorised as the climate of a mountainous region; and
– its deeply historical nature and classification as a long-standing and ancient human settlement.

Tawella, an ancient human settlement and boundary gateway, is located in the east of the Iraqi Kurdistan Region (Figure 3). Its history as an ancient human settlement dates back more than 4,000 years. It benefits from beautiful scenery within an area known as Hawraman. Moreover, its geographic location, bordering Iran, and its intensive forests (prolific with hickory trees) have promoted Tawella as an agricultural town.

Tawella is composed of three residential districts divided over three downhill areas of the valley. These three districts are composed of residential groups with buildings aligned in the form of overlapping masses, and penetrated by natural rocks and ridges (Figure 4).

Tawella is famous for its distinct climate. It can be covered with snow during the winter months with temperatures dropping below 0 °C. With a moderate temperature during the spring and summer seasons, it makes an appealing tourist destination (Figure 5).

The mean heights of mountains in Tawella are about 2,000 m above sea level. The highest point of the Hawraman mountain chain is 2,548 m above sea level (Figure 6).

The field study in this paper included coordinate readings and topographic surveys using a total station, X-Y-Z determination, transformation of these coordinates in Microsoft Excel, and then processing of all data using a land development software program in order to construct a topographic map. Total station coordinate readings were also supported by the use of GPS to link the coordinates in reference to sea level readings.

Figure 3. Map showing the location of Tawella.

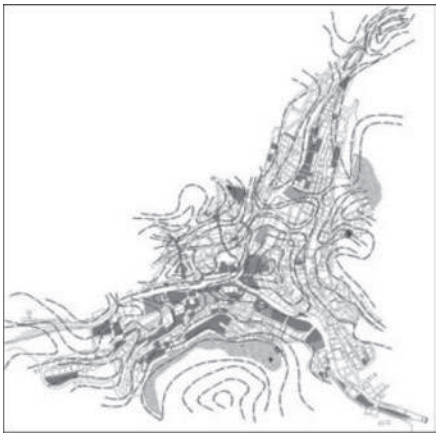


Figure 4. Plan of Tawella with topographical lines.

Figure 5. Tawella settlement.

Figure 6. Topography of Tawella.

Table 1. Basic information for Tawella.

Overall area of the site	262 ha
Number of residential sector	3
Population number	3,260
Number of dwellings	430

6.1 *Tawella physical configurations*

The physical configuration of the study area varies according to differences in the surrounding environment. These variations are reflected through differences in colour, texture, materials and overlap with nature (Figure 7).

In order to discover more about the mechanisms and characteristics of the study area, the formative structure was studied through the analysis of configuration characteristics, the rate of influence for each element, and an analysis of the results. During the field study and the comprehensive site survey, a representative residential district within the study area was selected as a sample.

6.2 *Residential units with land formation relationships*

The existing residential units within the study area have two main types. The first type is a perfect correspondence with the land formation and the second is at odds with the land formation. Because of the steep regression of land form the residential units will be free from the ground line, it means that the relationship between the ground line and residential units has been lost.

Figures 8a and 8b illustrate the gradient level, mechanism of configuration and the relationship of residential units with perfect correlation or semi-perfect relationships with the land formation. All of these comparisons show land formation on one side and residential units located on the other. In addition, there exists a dissonant relationship with land formation, as done with the dwelling units set out above the other blocks which is free from any relation to the formation. Huge and rigid bodies of mountains have been carved into, creating small cramped beds with beautiful, lofty and sturdily built structures. The stones

Figure 7. Variation in texture, colours and materials.

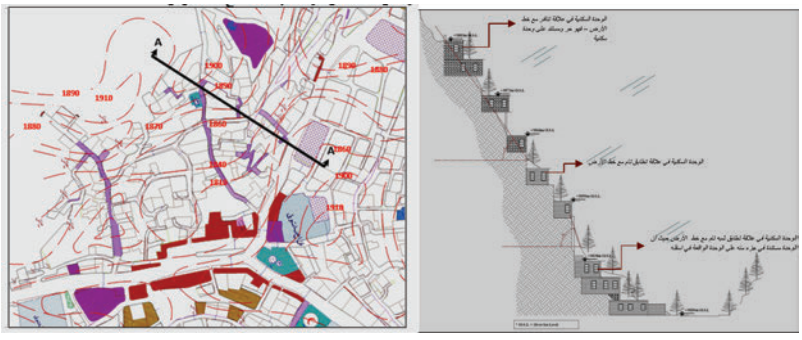


Figure 8. (a) Study area sector plan with topography lines; (b) Section A–A: The topography of the study area and the relationship patterns with land formation.

taken from that area are composed of completely vertical and plain surfaces (Rahmatabady & Amjadian, 2015).

6.3 *The relationship between physical configuration and site topography*

To determine the impact values of the existing relationship between physical configuration and site topography, it is necessary to study the relationship between configuration elements and the surrounding environment using descriptive and formal measurements.

6.3.1 *Configuration with site topography*

The relationships between configuration elements were conformed and interconnected. Thus, when the configuration lines were compared with topographical lines, an embodiment of topographical lines within the physical configuration was noticed. The extracted data was supported by a detailed survey, as shown in Table 2.

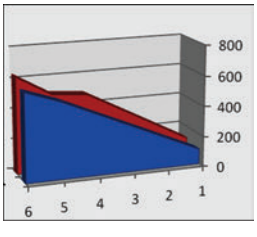
The analysis process used was as follows:

- a descriptive scale (junk scale) was used, which deals with determining values of (X, Y) where (Y) represents the value of configuration lines in the sector and (X) is the configuration of lines that are directly in contact with the topographical line;
- the data was converted to maps using the Autodesk Auto CAD, Land Development software program; and
- the layers system was used to match lines from existing situations with topographic lines (Figure 9).

The common lines were determined by the ratio X/Y where X = 546.5 ml (the configuration lines were in touch with topographic line) and Y = 723.2 ml (the general configuration lines). In other words, the ratio is approximately ¾ (546.5/723.2 = 0.756). Therefore, the relationship type is 'partially overlapping'.

Table 2. The length of contour lines within the sector and general configuration.

	Contour lines within the sector	Length of contour line within the sector (m.l.)	Length of general configuration (Y) (m.l.)	Length of general configuration (X) (m.l.)
1	1st contour line (1810)	138.0	142.0	102.1
2	2nd contour line (1840)	190.1	163.2	123.2
3	3rd contour line (1860)	180.4	152.3	111.3
4	4th contour line (1870)	168.9	140.0	98.5
5	5th contour line (1890)	120.0	83.0	68.5
6	6th contour line (1900)	62.0	42.7	41.9
	The sum of lines	859.5	723.2	546.5



– Blue colour: General configuration lines which are attached with topographic line.
– Red colour; General configuration lines.

Figure 9. The relationship graph for configuration lines with topography.

6.3.2 *The relationship between shapes and site topography*

It was observed that shapes which were generated within the physical fabric, represent the natural environment parameters. These shapes located in a hierarchy situation within the blocks and overlapped with other shapes composing the whole configuration.

To determine the extent to which they overlapped, the formal scale was used for comparisons between the overlapping of shapes, their gradual configuration, and the nature of the overlap with the topographic gradient. The steps followed were:

- samples with six residential units within the general configuration were taken;
- the existing situations were converted to 3D shapes with landform realisation;
- to identify values that were to be analysed in order to determine the overlapping rate among modal blocks, the blocks were analysed and their areas were found using the Autodesk 3D-MAX program;
- the overall areas of shapes—within blocks – were 2,538 m^2, which is denoted by (X);
- the area of overlapping shapes within the configuration was 279 m^2 (Figure 10a); and
- the area of shapes that overlapped with each other, in the absence of an effective topography, was 414 m^2 (Figure 10b).

After studying the ratios, the results were as follows:

- in the case of the presence of topographic impacts, the ratio X/Y = 279/2538 = 0.11;
- in the case of the absence of topographic impacts, the ratio X/Y = 414/2538 = 0.163;
- after comparing these two values, the impact of topographic factors was noticed when identifying the types of shapes overlapping. In the case of a gradient with an angle of 71°, the ratio of shapes that overlapped was decreased by 32.5 per cent; and
- after comparing the block configuration (Figure 11a), the area of blocks overlapping over the land was calculated and compared with the area of configuration overlapping with land (without the topography lines i.e. flat plain area), as shown in Figure 11b.

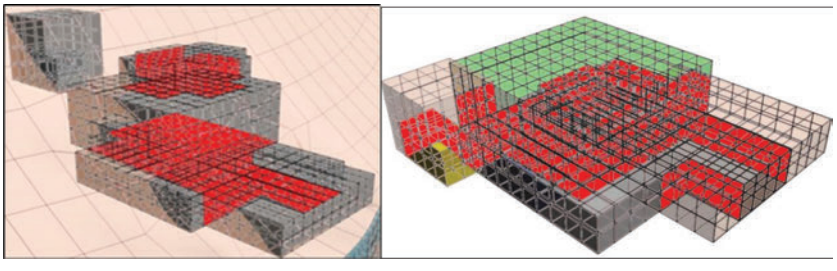


Figure 10. (a) Shapes overlapping together with topography within the configuration; (b) Shapes overlapping together without topography within the configuration.

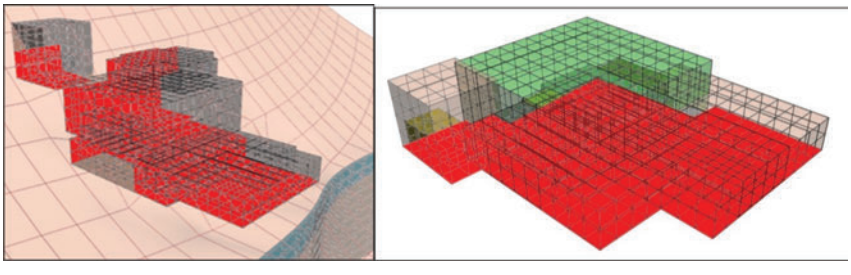


Figure 11. a) Area-shape overlapping with topography within the configuration; (b) Area-shape overlapping without topography within the configuration.

Table 3. he results of the cases studied within the practical part of the study.

	Main issue studied	Related issues	Results	
1	Dwelling units with ground line relationships		Perfect correspondence for units below the road level Discord for units above the road level	
2	Configuration lines with site topography		Ratio of relationship = 0.756 Relationship type is partially overlapping	
3	**Configuration—Site topography relationships**			
3.1	The shape with site topography relationships	A: shapes overlapping for masses with each other inside the fabric	Topography considered Topography not considered After comparison and analysis	Ratio = 0.11 Ratio = 0.163 Decreased by 32%
		B: shapes overlapping for masses with ground lines	Topography considered Topography not considered After comparison and analysis	Ratio = 0.11 Ratio = 0.874 Increased by 37.5%

The ratio results were as follows:

- In the case where the topographical impacts had been considered:
  - he area of overlap = 409.5 m^2;
  - he overall area of masses overlapping = 819 m^2; and
  - he X/Y ratio = 409.5/819 = 0.5.
- In the case where the topographical impacts were not considered:
  - he area of overlap = 716 m^2;
  - he overall area of masses overlapping = 819 m^2; and
  - he X/Y ratio = 716/819 = 0.874.

Therefore, masses with land form relationships is (overlapped relatively), when the topographic factor impacts were considered. The ratio of overlapping decreased by 37.5% rather than the situation if the topographic factor impacts has been neglected..

6.3.3 *Relationships between site topography with inside-outside spaces*

The physical configuration of the study area is featured in two types of spaces: interior spaces, which are represented in the dwelling units, and external spaces, which are represented by the axial meeting of zigzag alleys which are linked to one another. These spaces are formed as (private-level) nodes that involved in facilitating movement and circulation toward parts that take concurrent tracks and parallel to contour lines due to site topography.

There are not any types of median spaces due to a steep inclination that sometimes exceeds 65°. Thus, there emerges a need to build retaining walls in order to exploit those areas rather than rely on stairs for movement. In terms of space linkages, the principle of stacking (compactness) for a group of masses within the same fabric was noticed. This is because of mountain canyons that limit continuous stacking and shifting from one level to another (with a noticeable difference leading to a gap between blocks within the fabric, see Figure 12a).

Moreover, if a lump within the fabric is taken into consideration, the ratio of mass overlapping will be too large and will lead to a high partial overlapping ratio such as ¾, as shown in Figure 12b. The lower surfaces of masses used as corridors between lower and upper levels. On the other hand, some of the dwellings (with two floors), which are located in the rough edges, their entrances will be from the upper floor. This is mainly due to insufficient space in front the unit due to topography. Figures 13a and 13b).

Figure 12. a) Dwellings aligned within a block and spacing between existing blocks; (b) An example of dwelling alignment and masses overlapping.

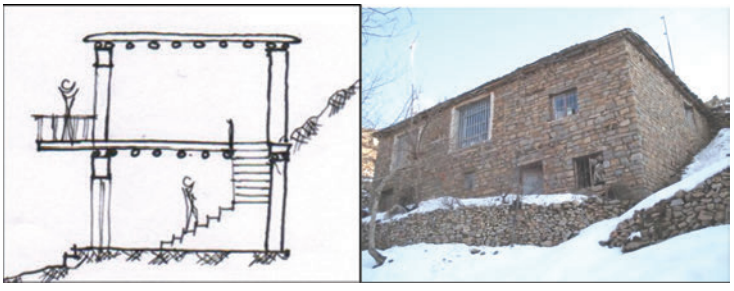


Figure 13. a) Moving from one unit through the use of stairs; (b) A dwelling located on a hillside.

7 CONCLUSIONS

This study led to a set of conclusions that encompass several important points. The main aspect of architecture, in terms of relationship to nature, may be summarised in two main approaches. The first approach is architecture as a part of nature (harmony with nature), and the second is architecture as a man-made creation in nature (nature perfection). The models studied in this paper were on longitudinal strips, and consisted of compacted and balanced residential units which represent the outcomes of topographical influences on configuration.

Moreover, the configuration lines of residential units overlapped with land form within the fabric in two patterns. The first created a perfect correlation while the second gave a partial correlation, represented by a configuration of residential units perpendicular to topographical lines. The shapes generated within the physical configuration in the mountainous region were determined by gradient and featured overlaps between each other in ratios less than those in flat areas. Additionally, the overlap ratio between masses and shapes, which were composed from the configuration with land form in the mountainous region, was changed. The ratio, depended on the (rate of changing) in topographical factor. This proportion ratio was also inverted when horizontal overlapping occurred. However, overlapping on a vertical basis increased proportionality.

Finally, spaces of physical configuration in the mountainous region have special features in terms of overlapping with masses. These spaces interfered horizontally, were parallel to each other and were accessed through open front aisles or corridors. Corridors within the physical configuration were in harmony with the topography. In residential configurations with rugged topography (represented by a slope angle above 50°), corridors (movement paths) vanished and access was limited to stairs and the upper parts of the buildings.

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The effect of social and environmental factors on the urban form of a place: A fishing village in Hurghada, Egypt

Eman Faiez Maher Bassily
Department of Architecture, Faculty of Fine Arts, Helwan University, Giza, Egypt

ABSTRACT: This research considers how to improve the urban quality of the city fabric to restore its identity using the hypothesis that environmental and social characteristics of people in certain communities have a great impact on the urban form of a place. This research is based on a number of facts, including that the design process of housing and construction materials used in a fishing village are related to the residents' main activities and social life. The main problem is represented by the unplanned actions implemented in these communities that ignore the social and environmental factors that should be studied before implementing any changes. The research methods used included surveys, site visits to both the existing village and the new one built by the government, analysis and observations. The main findings of the study revealed that unorganised and haphazard changes to these communities cause them to lose their characteristic local socio-environmental urban form and architecture. It is concluded that sustaining the place would preserve the environment and the social life of people and, consequently, conserve the urban form and spatial characteristics of the place, which in turn gives it its heritage, activity and identity.

Keywords: place; identity; environment

1 INTRODUCTION

The urban form and architectural characteristics of a place are affected by the social life of the people living in it and the general environment of the place itself. In addition, the socio-economic characteristics of a place and the environment affect each other to different degrees; this, therefore, results in the urban form of a place that also reflects its environment. This effect is seen in three main urban components: urban planning (urban form of buildings, streets and services), urban open spaces and the architectural design of residential buildings.

Hence, the research is based on the hypothesis that the environment and the social characteristics of people in any community have an effect on the urban form of a place. Any change in the environment and/or the social characteristics of the people affects the final result, that is, the urban and architectural product, its form, shape and style. It is therefore important for a researcher to recognise the aforementioned concept and apply it to any given community in order to identify its urban environment (Almansory, 2001).

This research hypothesis can be applied to villages that have unique characteristics, such as fishing villages. These villages are characterised by their primitive and traditional communities and ways of life. They have clear social, cultural, and economic characteristics, which are considered to be the most important factors that have an impact on the urban form.

2 THE RESEARCH PROBLEM

The initial main problems identified in this study were unplanned actions, lack of studies when implementing changes in the urban form of these communities, and ignoring social

and environmental factors. In terms of modern technology, changes that take place in communities are considered necessary, but the social and cultural factors of these communities change alongside such changes, which also alters urbanism. However, the change that occurs should not negatively affect the characteristic features of any community, especially when they relate to heritage and social life. In some cases, the government is responsible for changing the urban identity of certain places through haphazard alterations that are implemented regardless of the culture, social life, heritage of the place, and the natural environment. This in turn causes them to lose their characteristic urban form, which should be preserved as a cultural heritage that brings life to the place.

The problem has four dimensions and is discussed in the following subsections.

2.1 *The national dimension*

There is no strategy to upgrade villages of a certain value. Instead, the government applies certain rules which negatively affect the social and cultural character of a place, and neglects its role in the development process.

2.2 *The planning dimension*

When renovating and restructuring a community the social factor is ignored, which repels the original residents and results in a new community without people.

When the Egyptian General Authority of Tourism Development planned the development of the coastal districts, they ignored the existence of the local fishing villages and concentrated only on tourism projects. As a result, many fishermen that lived in the new tourist districts along the eastern coast from Safaga to El Qoseir started working in the tourism sector.

2.3 *The social dimension*

The original residents are sometimes unaware of their surrounding cultures.

2.4 *The economic dimension*

The increasing interest in the fishing village is primarily due to the importance of fishing and the fish crop within Egypt. This is a result of a lack of animal protein sources, and the existence of large areas of water and coasts in Egypt.

3 THE AIM OF THE RESEARCH

This research aims to improve the urban quality of the city fabric, to restore its identity. This could be achieved by identifying social, environmental and economic principles that should be considered by planners and designers when starting to plan new communities for people. In addition to the main purpose of the research, there are a number of secondary aims as follows:

- understanding and realising the nature of change in primitive communities and the factors affecting that change as well;
- restoring the architectural and urban character of these communities;
- increasing the effectiveness of such communities in order to increase the national income;
- attaining a degree of balance between modernism and valued heritage. The study of the social life of the local people will help in acquiring the knowledge required.

4 THE COMMUNITY

People generally prefer to live in groups because this makes them feel safe. These groups are organised by a number of frameworks that govern the relationships between different

individuals within the group. These frameworks are made up of a number of rules, habits, and customs (Mohamed, 2004). The idea of the community originated from the aforementioned concept of groups. A community is defined as a group of people ruled by a group of relationships that have the same framework, characteristics and benefits (Zaki, 1986).

5 THE SOCIAL ENVIRONMENT

The social environment is a part of an inclusive environment that contains individuals and groups and their interactions. It also includes social relationships and other types of social order. The social environment therefore, consists of a community with all its social relationships and types, and it is the space that is made up of people with organised social relationships and bonds. In addition, the social environment is considered to be all the social and cultural factors affecting individuals or groups.

Social action is a form of human behaviour and is always variable, differing from one individual to another because it is based on psychological and cultural values, and the surrounding community (Wasfi, 2003).

5.1 *The elements shaping the social environment*

The following elements define the differences and similarities between social environments and they are necessary to understand a specific community's social environment. One or two of these elements could work together, the most important of which include:

- demographic characteristics;
- social layers and standard of living scale;
- women's role in the society;
- education.

6 THE URBAN ENVIRONMENT

The urban environment is a part of its surrounding environment. It is the physical product resulting from the interaction of people with the environment in order to fulfil their requirements given their cultural and social background.

6.1 *Types of urban environments*

The urban environment can be classified as a primitive traditional urban environment or a planned urban environment.

The differences between the traditional and planned urban environments arise because of the dissimilarities between people and the surrounding environment of each. The traditional urban environment is one that has a direct relationship between the people and their environment. On the other hand, the planned environment has no direct relationship between the people and the environment. This is because of the influence of a number of factors,

Figure 1. User participation in the construction phase creates social links between users. (Source: Researcher).

resulting in the final product being considered a planned one according to the policies and attitudes of the government and not fulfilling people's needs of their environment.

The differences between traditional and planned environments are illustrated in the following subsections (Ibrahim, 1999).

6.1.1 *The stage factor*

The traditional environment is characterised by its staged growth, since the construction is related to people's needs. Whenever their needs increase, the construction process continues. However, the planned environment is characterised by its completed stages of construction according to previously calculated needs. Consequently, the urban form of the planned environment appears in its final form from the beginning.

6.1.2 *The designer factor*

A designer does not exist in the traditional environment, because the user of the place is the one who designs and forms the urban environment according to the needs and requirements of the people. This takes place with the help of local builders. The final product therefore depends on the character of the users and their culture (Figure 1).

6.1.3 *The construction factor*

In the traditional environment, the customs, habits and traditions are the main factors in the construction process. This defines the distance from neighbours, openings, heights, direction, use of building materials, and certain building solutions for entrances or roofs. In the planned environment, the rules and regulations of buildings are the main factors in the construction process that define the heights and distances from other neighbours.

7 VILLAGE DEFINITION

A village is a social unit with a defined area with strong social characteristics; people's activities are related to the surrounding environment. The village could be a 'country-community' if its activities are related to agriculture, and is not a country-community if it is related to any other sector of activity. However, it will always be defined as an area that has the same characteristics as the countryside (Abd Elhamid, 2000). The village community is classified according to a number of factors as follows:

- area classification according to statistical factors;
- economic classification;
- form classification;
- administrative classification;
- classification based on relationship to the city.

On the basis of these factors, an ascending classification of local communities, as depicted in Figure 2, can be created as follows.

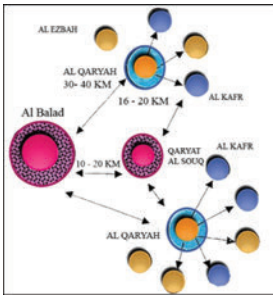


Figure 2. Urban communities hierarchy.

7.1 *Al Ezbah*

This is the smallest regional unit spread in the countryside on separate distances from the villages. It depends on surrounding villages for its services and its population is between 30 and 100 people.

7.2 *Al Kafr*

This settlement is bigger than Al Ezbah, but it resembles it in function. Its population is between 50 and 100 people.

7.3 *Al Qaryah (the village)*

This village serves the surrounding settlements of Al Ezbah and Al Kafr. Many of its residents work in handicrafts, carpentry and blacksmithing, as well as agriculture. There are a number of services, such as businesses, a mosque and a church. Its population is between 300 and 800 people.

7.4 *Qaryat al Souq (the market village)*

This village hosts the main market that takes place once or twice a week. It is located between Al Ezbah and Al Kafr and other villages benefit from its services over a distance of 16–20 km. It is a centre for commerce and product exchange. Its population is between 800 and 3,000 people.

7.5 *Al Balad*

This settlement is a developed unit between the villages and the city and provides a number of services, but not to the level provided by cities. Its population is between 3,000 and 8,000 people.

8 THE FISHING VILLAGES (GENERAL CONTEXT)

These are the villages where fishing is the major economic activity. The main components of the urban form of the fishing villages are as follows:

- building mass – most of them are a group of adjacent buildings with a view of the sea or lake, since fishing is the main activity;
- residential housing for the workers – consist of a reception and living area, bathroom, kitchen, bedrooms, a storehouse for fishing tools, and an open court with fencing. The building materials used are stone and palm fronds (Figure 3);
- main open space – a square that holds the most important elements, such as the market, mosque and shops (Figure 4);
- secondary residential open spaces – found inside the residential clusters or in areas surrounded by houses in order to provide a form of social interaction between people (Figure 5); and
- fishing activity related services – found in the newly constructed villages and concentrated next to the harbour. Refrigeration units are provided for the preservation of fish. Small ice factories, sales centres and small markets can also be found here (Figure 6).

8.1 *The factors affecting the architectural and urban form of the fishing villages*

In the history of art and architecture, it is the case that there are a number of factors that affect any architectural or structural style appearing in any place at any time in history. These factors define the character of this style in an indirect way. Among these factors are social and environmental ones. The social factors consists of sub-factors such as kinship, religion,

Figure 3. Plan of a typical fisherman's house.

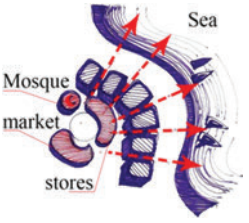


Figure 4. Plan of main open spaces.

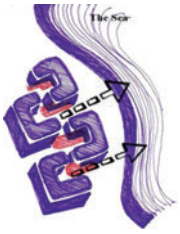


Figure 5. Plan of residential open spaces.

Figure 6. Plan of fishing activity related services.

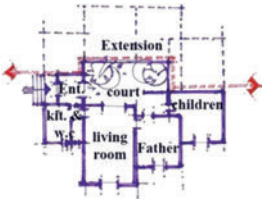


Figure 7. A plan of a typical *diwany*.

culture, customs, traditions, popular beliefs and socio-economic effects. The environmental factors, such as climate, contribute to shaping the place and the materials used in buildings.

8.2 *The influence of the kinship factor on architectural and urban form*

The kinship factor plays an important role in village life, because the people within a group of their own kin perform all their activities together. The group has an economical, religious and political role.

This factor plays an important role since it defines the individual's membership in the group, and his or her responsibilities and duties towards others. It has an influence on the architectural and urban form and it takes into consideration the next generation that will later live in the place. For example, the design of the house has a large court for the future generation. The *diwany* is a small house inside another larger future house, consisting of an interior open space such as a living room, a dining area, a kitchen, a bathroom, and a bedroom. The *diwany* (Figure 7) is a future house designed for the owner's daughter for when she gets married (Suzan, 1999).

8.3 *The influence of the religious factor on the architectural and urban form*

The religious factor is reflected in the architectural and urban product of a place. Privacy is reflected in the design of entrances to houses, in addition to the existence of another secondary open space to serve the residential buildings (Figure 8). The mosque forms the most obvious and characterful location in a village; its form is very simple and it controls the visual form of the place with its minaret.

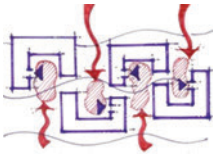


Figure 8. Incorporating privacy in house design.

8.4 *The influence of the cultural factor on the architectural and urban form*

It is important to study the culture of any community because it reflects that of its people. It is also important to study the relationship between culture and the architectural and urban form of a place to understand the influence of culture on a community. For example, the indirect entrance of a house prevents people outside the house from seeing others inside; this ensures the privacy of residents and fulfils their characteristic needs in their daily life. Additionally, the drawings on doors and walls convey certain meanings related to the community's culture. For example, the drawing of a lion supposedly prevents evil forces from getting near the house, the alligator represents privacy and protects residents from envy, and triangular shapes protect people from the surrounding natural environment of mountains (Tavakolian, 1993).

8.5 *The influence of socio-economic factors on architectural and urban form*

The economic factor is one of the social factors that affects the community; it is made up of secondary factors such as forms of ownership, means of production, consumption, and exchange and work distribution. It is a group of ideas used to fulfil the primary requirements of people according to the surrounding natural environment. The social-environmental factor is reflected upon the architectural and urban form. For example, the planning of a number of open spaces in the urban form of a village is classified according to the activities of people. These villages could have markets, fish products and services to fix fishing nets, and there are also pathways that connect people who work within the same activity. The design of a house has a space for fixing fishing tools and nets, and also has a storehouse for fishing objects. The economic situation is reflected in the building material used for the house, along with the way it is constructed, and the fact that women and the whole family contribute to the construction process.

9 THE FISHING VILLAGE OF HURGHADA

9.1 *Location*

The village is located in Hurghada, Egypt, and the local residents originally worked in fishing activities due to its location on the Red Sea. However, after Hurghada's main activity was changed to a touristic one, the percentage of people working in the fishing industry decreased and the number of people working in the tourism sector increased (Figure 9).

9.2 *Pedestrian pathways in the fishing village*

The pedestrian network has fulfilled the gradient of pathways network, the strength of network and its main function.

9.3 *Analysis of general services*

Based on a survey conducted by the authors, the different services related to activities that take place in the village were analysed (Table 1).

9.4 *Social and economic characteristics*

The survey also analysed the socio-economic data (Table 2).

9.5 *Influence of social factors on the urban form of the fishing village of Hurghada*

Table 3 illustrates the influence of social factors on urban form, as detailed in the following subsections.

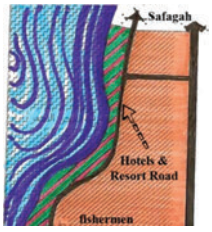


Figure 9. Location of the fishing village of Hurghada.

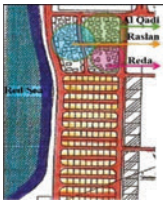
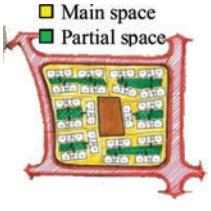
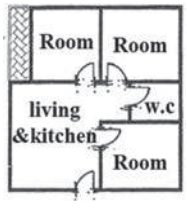
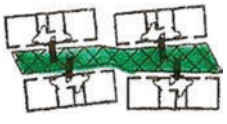
Table 1. Fishing village activities.

Percentage	Area	Service type
42.5	1.7	Education service
16.5	0.65	General daily activities
12.5	0.50	Fishing-related services
11.5	0.45	Religious service
10	0.4	Health service
7	0.35	Administration service
100	4.00	Total

Table 2. Socio-economic characteristics (Environmental Characterization for Red Sea Governorate, 2004).

Socio-economic characteristics			
Village area:	14 acres	Agriculture employment:	10%
Population:	2,500	Fishing type:	Collective
Density:	178 p/m	Fishing tools:	Single
Average size of family:	7 persons	Main sales:	For tourist villages
Unemployment level:	0	Fishing and admin.:	Collective
Main economic activity:	Fishing	Income average:	EGP 400
Fishing employment:	50%	Women in education:	10%
Tourism employment:	35%	Illiteracy rate:	50%
Commerce employment:	5%		

Table 3. The influence of social factors.

Village form	Open spaces hierarchy	Architectural design	Residential clusters
			

9.5.1 *Village form*
The kinship factor influenced the form of the village where there are three major families in the old core of the village (the Raslan family, the Al Qadi family and the Reda family).

9.5.2 *Open spaces hierarchy*
The residential buildings are grouped together, where each group is made up of a secondary open space where the fishermen perform their social activities.

9.5.3 *Architectural design*
The extended family influenced the design of the houses in the village.

9.5.4 *Residential clusters*
The locations of entrances to houses were designed in an alternative way and direction to ensure privacy.

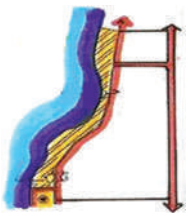
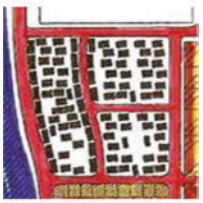
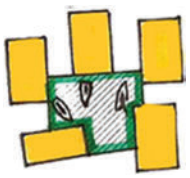
9.6 *Influence of environmental factors on the urban form of the fishing village of Hurghada*

9.6.1 *Land use*
The old village had different land uses due to its location, and the mosque is located directly on the coast due to its importance to people there.

9.6.2 *Architectural design*
The non-existence of a 'reception' area in the house, which is related to religion, given that fishermen spend months away from home at sea.

9.6.3 *Building materials*
Stone, and palm fronds and trunks were used as the building materials. This was due to the low income of the residents. These materials were brought from the surrounding environment.

Table 4. Comparison of the old and new village.

	The new village		The old village	
Building material	The building material is mainly concrete.		Walls are made from stone and roofs are made from palm fronds.	
Location and urban form	Its location on the sea made fishing the main activity.		Random urban form due to ownership system and the surrounding environment.	
Land use and open spaces	Workshops to fix boats.		Secondary open spaces used to fix boats.	

9.6.4 *Village form*

Due to the ownership system, the urban form and the buildings appeared in an irregular plan; however, this protects the village from different changes in the weather across the year and due to its location on the coast.

9.6.5 *Open spaces*

The existence of secondary open spaces, used to fix boats and to create good air circulation, plays an important role in lowering the summer temperatures.

Table 4 illustrates, in brief, the comparison between the old village and the new one built by the local government for the people.

10 RESULTS AND CONCLUSIONS

The main findings of the study revealed that the unplanned changes implemented on these communities caused them to lose their unique local socio-environmental urban form and architecture. The results of the relationship between the social factors and the environment showed that proximity to the city and tourism resorts affected urban form. Other factors have also affected the urban form, such as cultural factors, which are represented in traditions and customs. This has especially affected houses, building materials, spaces and their hierarchy. The kinship factor also affects the form of the house and, consequently, the village. However, the religious factor was not found to have a great effect on the overall urban form, but it affects the design of individual houses.

It is concluded that sustaining a place would preserve the environment and the social life of the people and, consequently, conserve the urban form and spatial characteristics of the place. These, in turn, give it its heritage, activity and identity.

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The nature of cities

Domenico Chizzoniti
Architecture, Built Environment and Construction Engineering Department, Politecnico di Milano, Italy

ABSTRACT: As we already know, urban conditions are moving towards an "urban age", where urbanity in its varied forms is going to characterize the human habitat and become our dominant social condition in the "recent future". Despite their differences, many cities around the world face some common challenges as they rapidly urbanize. Social, economic and increasingly spatial inequality is a repeated theme, with cities such as Karachi, Mumbai, Lagos, Jakarta Johannesburg or Mexico City, seriously struggling to find common ground for rich and poor. In both these cities, as in many others worldwide, slums and informal settlements continue to sprawl between gated and secured luxury suburbs. A city may have redeveloped its system, outgrown its capacity or lost it altogether. A growing reliance on shrinking natural resources is one of the most alarming challenges to be faced worldwide.

Keywords: urban age; spatial inequality; slums; secured luxury suburbs

1 INTRODUCTION

1.1 *Nature and cities*

What do we mean, today, by the words nature and cities? Are they now empty and crystallized notions or, on the contrary, do they still have a way to search, meet and explain? In which measure can a person, as historical being, understand and test the nature as a precondition for his/her existence? How can the relationship between nature and cities, nature and technology, nature and art be read? We try to answer these questions through different approaches and styles, starting from the condition of the new city and considering its reason and its artificial structure.

Although the theoretical context has always been improved by several contributions, a number of essential issues should be further highlighted. The first concerns the need for a unitary and simultaneously plural conception of the city as a physical and natural fact. This implies the attempt at rethinking of the impossibility of considering their relationship in dualistic terms. The recognition of the naturalness of the human settlement as the original dimension of the human beings, both as a biological and bodily organism, goes hand in hand with the discovery of their ability to transcend nature, and after all it can be said that the creator of the city, i.e. the human being, is not a nature but has a nature (Schindler 2015).

In the same way, in which neither a pure ego nor a consciousness external to the world and unrelated to nature exists, there is for us no pure nature, conceivable outside the historical condition underlying our understanding of it.

In other words, the schizophrenia characterizing the contemporary works of visual art, that convey the paradoxical conception of a nature as an available and changeable mass and, simultaneously, as a lost origin, primitive and idyllic dimension nostalgically recalled: at urban level, for example, this "pre-technical reactionary longing" (Duque 2007) appears in the creation of spaces delimited inside the city, the new enclaves of postmodernism such as gardens and parks, and even the snow-capped mountains of Dubai, the so-called new Disneyland of emirs, which artificially reproduce an uncontaminated nature.

1.2 *Culture and nature*

The general idea is that we are no longer able to understand the essence of the semantic structure of nature without considering the technical, urban or architectural intervention. Nature and artifice are arranged on two different levels in our artistic or technical work, therefore nature is always the "exiled" and sublimated element, which is transcended into and from our work. This also means that the natural link with the land is demonstrated within the historical time and the multiple forms of culture: paradoxically, the creative transformation of nature is not possible without prior understanding of the natural data in a horizon of meaning, thus in a historical and cultural horizon (Schindler 2015).

Spaemann states that the concept of nature is essentially dialectical, not only because it usually implies and contains an against-concept (technique, culture, rule, reason, grace etc.), but also because it represents a home and at the same time an obstacle for the human being: hence, the *conditio humana* is characterized by the tension between the inclination to the supremacy (whose instrument is science as a mere knowledge of the functional links, without interest in the origin and in the *télos*) and that to the understanding and to the relationship (typical, on the contrary, of philosophy).

Although human beings are linked to their terrestrial origin (the word *homo* comes from *humus*), nature always indicates an extraneous dimension from which we are already separated *ab initio* as reasoning beings. But the word "culture" comes from the Latin *colere*, i.e. to cultivate the land, to be meant as humanizing and not deleting nature—Heidegger will say that living means building, "a building nursing and nurturing the things that grow".

Through (technical) action and thought, human beings overstep their natural and physical link to earth, creating a meaning horizon that allows to meet the entity: as a matter of fact, beyond any demonization, the technique is the way in which human beings interact with the natural order and, starting from this, build the human order (Duque 2007).

1.3 *Nature and artifice*

The construction as a form of living and the creation of a social context of people are the link between natural and artificial; the risk in this construction of human ensembles, however, is that human beings turn the movable boundary interposed between themselves and nature into a "supremacy frame": this is what happens today in the shift from technique to technology, which is self-oriented and self-directing. It is a conception of science and technology in which they are conceived as equal or even substitutes to nature: a form of techno-nature, i.e. a phase in which the technique plays the same strangeness of nature, its inhuman and artificial character (Duque 2007).

The loss of the sense of *télos* in the conception both of nature and of life implies the transformation of science and technology from products or ways of being human into ultimate horizons of meaning, within which human beings are reduced to an ephemeral presence.

2 THE STATUTE OF THE CITY AND THAT OF NATURE

2.1 *Embellissement vs chaos*

We have a choice in front of us. Either we continue demonizing the cities or we accept that cities and nature should be harmonized for a sustainable urbanization. A "sustainable" city: a far too much widespread slogan. The idea of a contemporary globalized city aims to express a tension involving social, economic and territorial policies, but it sometimes lacks an integrated vision, i.e. its urban structure that is its essence.

The world-scale imbalances result from reckless support to global unsustainability, generated by discontinuous visions and actions of single independent additions. After all, the individual fragmentary actions are always at risk: Edward Lorenz proved it with the 'chaos theory' according to which the beat of a butterfly's wing in Brazil can cause a tornado in Texas.

In the twenty-first century, the urban growth will experience the most rapid expansion in the history of mankind. In Asian and African cities, in which urbanization is in full swing, the population will increase by several billion. For this reason it will also be necessary to plan a development of urban infrastructures able to support this phenomenon.

While facing this challenge, ecologists, planners, economists and landscapers always tend to consider a particular simplistic relationship between city and nature. In particular, there is always a partial view about the relationship between nature and city, which is most often limited to the role of natural infrastructure, i.e. habitats or natural spaces recreated by human beings, which are rather trivially deemed able to provide users with alleged benefits. Cities offer many economies of scale, reducing the per capita use of some resources.

Several recent conservationists look at the current urbanization of our species with sadness because they claim that this phenomenon results in "the end of nature", to use the words of Bill McKibben.

This incomplete view of the phenomenon looks more at the results than at the causes. Stating that we have reached a point where every square meter of land and every ecosystem have been altered by human beings and therefore the nature itself no longer exists, is a way to ratify the end of cities and the death of nature, because urban spaces are spaces totally created and designed by humans for themselves.

2.2 *Rural and urban resources*

However, considering the city from the point of view of its relationship with natural resources means basing the analysis on a conception of the city as a complex system, which is however primarily artificial. In this way, the urbanized city would end up representing a system having a plurality of relations with the rural outside. These relations between the artificial city size and the natural size of the countryside have always showed to be a long-lasting relationship in terms of input (food, resources, water, energy) and output (goods, services, technology, knowledge, etc.).

As a system that drains, metabolizes, works huge quantities of natural and energy resources, the city has shown the historically entropic character of its artificial structure, which since the beginning has stood at the edge of arable land and has built a relationship of dependency on the surrounding areas. But, it was in the 19th century that the city was transformed from a low entropic dissipative system into a high entropic dissipative system.

This course was part of the second great transition defined by Clive Ponting, characterized by the large-scale consumption of fossil fuels, and linked to the great economic, social and demographic upheavals of the contemporary age. If until 1800 the percentage of the urban population in the world was only 2.5%, at the end of the twentieth century it increased to about half of the total population (Ponting 2007).

This increase led to structural changes of extraordinary importance. The index of Rees (urban ecological footprint) has shown the increased need for resources, during the twentieth century, by the inhabitants of the urban realities of the industrialized areas (from 1 to 4–6 hectares) and at the same time the reduced available production area (from 5 to 1.7 hectares).

In addition, it is estimated that in just 35 years, six billion people, equivalent to the entire world population in 2000, will live in cities. With three-quarters of humanity settled in urban areas—a phenomenon, which can be considered the largest migration in the history of mankind—several critical points will arise. In this timeframe, it will be our task to review the role played by cities in an increasingly populated world.

3 URBAN DEVELOPMENT AND ENCLAVES. THE METAMORPHOSIS OF THE CONTEMPORARY CITY

3.1 *Enclaves and ghettos*

Can we still talk about continuous city when it is taking the shape of residential or commercial enclaves along the great infrastructure, but closed and extremely supervised?

The phenomenon is present—but it is weak in this case in comparison with Los Angeles or some other realities not only in California—and it is well defined in the 'Geographies of fear' of Mike Davis. The enclaves, obsessed with security, are a logical evolution of the pilings of monads which characterize contemporary construction. The undifferentiated urban pattern resulting from the sum of basic elementary structures is not the continuous city, and it has nothing to do with 'Madrid-ciudad lineal' of Soria y Mata or the Linear City, Sosgorod of Miljutin.

This new dimension of urban settlement also seems quite unrelated to the well-founded principle underlying the idea of the city as a community, as successfully demonstrated by those archaeologists for which the city began to be defined as such when the space between the buildings has taken on meaning, or better when the significance of the relationship spaces began to prevail over the individual buildings. After all, when it is clear that not only monuments but also the open space connected with the mobility infrastructure were able to establish relations of reciprocity, a change took place in the historical dimension of the city, with the establishment of production facilities in the urban context.

3.2 *Permanence and transience*

This condition, in the city construction process, evolves through a process of transformation determined by the sequence of additions, differentiations, oppositions, polarities and architectural supplements. However, if we thought of the "theories of permanence" as developed by Marcel Poète (1929) and Pierre Lavedan (1959) and subsequently taken over by Aldo Rossi (1984), the knowledge of the city would become essential for the purpose of understanding and critically decoding the urban form and the aggregative substance of primary and secondary elements of architecture. The disorder and the loss of its formal structure is one of the most striking aspects of the urban settlement crisis and its discontinuous fragmentation. Already 40 years ago, the spreading of buildings on the territory for Konrad Lorenz was among the 'deadly sins of our civilization'. The constitutive elements of the urban structure as the block, the square, the streets, the orientation and the shape of the structure, the building types, their combinations and ways for land use, are already part of nature and of the characteristics of a place, a city or a part of it. Theory and practice of architectural design are measured with this awareness in the wake of Marcel Poéte's lesson, establishing the urban science underlying the city as the foundation for the study of architecture.

If the word 'city' connotes a reality which has changed, should it be set aside? Is it still allowed to define that constitutive nature of the city in the contemporary metropolis?

Why should they be called continuous-city or spread-city? A new lexicon would probably be needed, capable of grasping discontinuity and diversity in the urbanized continuum where the built magma is opposed to new infrastructures, hampers the continuity of green corridors and wide-ranging networks useful to the quality of environment and of living conditions, and neglects the necessity of shaping new landscapes.

3.3 *Vision and reality*

However, retrieving the nature of the city means not only giving a morally sustainable share of equipment and urban green areas or an ecologically sustainable share of duplicate elements denoted as natural but completely different from the physical environment of the city. The recent cases of some principles of metropolitan forestation are visionary and remain rather naively linked to a stereotyped concept of nature. It is also true that the pathology of the recent urban condition is very clear, and the diagnosis is equally clear. The therapy and the methods to counter a deterioration, which appears inevitable are not that clear. Understanding the contingent causes is not enough: the abandonment of building continuity for the 'blocks' and the 'fences'; anachronistic standards; sector regulations; the oscillation of priorities between structures and infrastructure, no longer in symbiosis; the rate at which obstacles pile up on the territory, far from explaining potentials and landscapes; the size of interventions, the splitting of initiatives, and so on. Excellence and sporadic high-quality measures are not enough. The contemporary habitats show wastage and redundancies due

to organizational and business models that have a clear innovation potential. Moreover, it is overall not economical.

There is no utopia that is not based on large scales of intervention, or at least common principles, nor is there a reality without utopian vision.

4 THE URBAN-PHOBIA OF THE CONTEMPORARY

4.1 *The reproduction of nature*

In the present condition it is now recognized that it is no longer the necessary order of nature (logos) that imposes the laws of the *polis*, but it is the *polis* laws which must take responsibility for the fate of nature. Today, the humans' city that was once an enclosed space in the natural world, has replaced nature, which is now reduced to a mere enclosed space in the artificial world of the city (Galimberti 2000).

After all there, is an irreducible duality, a constant conflict, an opposition between the two settlement ways of the human species, i.e. between city and countryside. It is also an ideological fact that has produced several rural and urban settlement patterns throughout history.

But this opposition, in its pure form, has had a definite edge, a certain boundary and a clear border, the one of the walls, which were a necessary element of the historic city. A boundary, the one of the walls, which influenced the shape of the city and has also influenced its density. But the city has crossed the border of its walls and *faubourgs* arose near the walls. In order to survive, it accepted agriculture inside its walls, without giving up the benefits of the countryside: every day, or rather every night, a continuous flow of products was poured into mainstream markets, "bellies" of the city from the surrounding countryside.

The general markets such as *Les Halles* in Paris, protagonist of the novel *The belly of Paris* (1873) by Emile Zola, are the meeting point between city and countryside. The duality city/countryside, rural exterior and urban interior, brings a different dimension of living and production: however not the one between natural and artificial. It should be emphasized that, as a result of the fact that countryside and city are two artificial forms of the territory organization that have undermined the spontaneous and natural harmony of human beings with nature. These two dimensions are both an expression of supremacy capabilities of our species and its ability to imagine and build the future. Two entities forced to live together, even if the countryside can exist without the city, while the latter, until a few decades ago, could almost never disregard the countryside.

4.2 *The ideology of nature*

The relationship human-nature has been governed, for us in the West, by two visions of the world: Greek and Judeo-Christian which, in spite of being extremely different from each other, agreed on ruling that nature fell within the sphere of ethics, whose aim was limited to the regulation of relations between people with no extension to the entities of nature. As a matter of fact, the Greeks conceived nature as an immutable order, a horizon not be crossed, an invincible limit that no human action could infringe. When the Greek culture meets the Judeo-Christian culture, the scenery changes because the biblical religion that views nature as a creature of God, conceives nature as a result of a will: the will of God who created it and the will of human beings to whom nature has been given over to their supremacy. Since then, the meaning of nature is no longer "cosmological" but "anthropological" (Galimberti 2000).

Therefore, when we have to discuss the natural aspects of the city we have to keep in mind that the urbanization scope in recent decades is not the growing expansion of the city (which for the first time exceeds the countryside in terms of population). The most important phenomenon is indeed the progressive disappearance of the countryside: the ground floor is divided between cemented and abandoned soil, while agriculture is reduced; one of the two poles of the dialectics of the humanized spaces disappears, brutally placing the city in front of a nature with no human beings. It is a form of "urban-phobia" (or hatred for the city),

which is a complex feeling tracing its roots back in the 18th century, especially in Rousseau. The growth of the modern urban society enhances this feeling. The contemporary city in some of its aspects is perceived as a place of anti-civilization and anti-human (Cavin 2009).

5 THE NATURAL ORDER OF THE CITY

5.1 *The natural aspect of urban space*

"Buildings are appropriated in a twofold manner: by use and by perception—or rather, by touch and sigh. Architecture has always represented the prototype of a work of art the reception of which is consummated by a collectivity in a state of distraction. The laws of its reception are most instructive." (Benjamin 2008)

Starting from the condition of citizens as users, Kevin Lynch investigated the criteria for the urban image to be assimilated and stored. The very important question established by Lynch is the need to create a systemic language to define, insightfully, the urban form. However, this is discernible exclusively if its reverse shot, the rural environment, is also perceivable.

Currently, this duality is already damaged. In the extensive continuum of a city area it is impossible to find a clear boundary that can define its shape. Therefore, the traditional urban-rural dual structure is not recognizable in its traditional limit. During the past, the danger came from the nature, while nowadays it stems from the human power who tries to prevail on it, crossing all limits, not only by using it, but also exhausting it.

So, this duality must be searched in the relationship between the man-made environment and the abandoned and derelict environment. Large abandoned extensions are as dynamic and necessary, as the destiny of decommissioned micro and macro urban structures. The second duality is in the relationship between two main methods of man-made spaces, the rural and the urban one; it is better that they maintain permeable borders and mutual interference, thus re-establishing dynamics which could contaminate mutually.

The urban explosion, which often manifests in a hostile way, is now identified with the phenomenon of sprawl, which is the formless intrusion of the compact city into the countryside and in replacement of the latter. On the contrary, the rural environment pollution in the city occurs by discontinuous and accidental events, sometimes for a form of satisfaction with the recent environmental recriminations and ecological aspiration of the community. It is a simple aspiration that repeats in a rather sophisticated way a "hyper-naturalized" environment for the anthropic environment, which actually de-naturalizes it instead, because it realizes an "in vitro landscape" which is very inhospitable and little expansive. In other words, from the environmental and urban point of view, the incursion of nature into the city (that is called urban farming), without nostalgic compromises, seems like an evanescent answer to the need for increased quality of life. The clearness and the coherence of the city image become the founding characters to know the urban space. In this sense, there is no difference between the ancient man, who had to re-learn his land through the hunting or war, and the contemporary man trapped into metropolitan traffic; as the ancients, even contemporary men arrange things and landscape names according to functional situations of their location.

5.2 *An alternative urban paradigm*

The glorious survival of the city, which is the ecological niche of human species, cannot be realized in case of countryside annihilation: the *reductio ad unum* of forms in human spaces is an assumption (and then consequence) of the city crisis, connected to the other *reductio ad unum*, that is the main reason, i.e. the acceptance of a unique thought as a parameter to rule cities. The identification of parts, design and structure of the city is a necessary precondition to define the elements of identity (physical aspect of object), structure (relational aspect) and meaning (practical and emotional). In the recent condition of the city, these identities are not the same ordering elements of the medieval city (cathedral), renaissance (municipal building), nineteenth-century (factory), or modern era (industry).

Figure 1. Cape Town, South Africa, 2010.

Figure 2. Mumbai, India, 2013.

Figure 3. Nairobi, Kenya, 2010.

Figure 4. Sao Paulo, Brazil, 2013.

Figure 5. Rio\de Janeiro, Brazil, 2016.

Figure 6. Mexico City, Mexico, 2013.

Figure 7. New York, 2015.

Figure 8. Hong Kong, 2012.

The physical identities that we can find and recognize within the contemporary city and characterizing its natural order are various and they all refer to the need to organize the contemporary city. These identities can be related to the infrastructure system that physically organizes the local engineering and the layout of the city, through a mutual incursion of the nature into the city and of the city into the countryside.

The paths (all the public or private connective network of an area: pedestrian and automobile streets, railways, canals and so on) represent the connection able to determine the natural structure of the city. The same applies to the limits, no longer those geometrically defined by the physical structure of a wall, but rather those borders that have certain characters of discontinuity (boundaries, shores, building's lines of continuity, railway mobility areas etc.); they are potentially capable to adopt and duly describe the new urban landscapes of metropolitan cities. It is the new Landmarks that, as a physical structure, are able to receive the reference role in the order of urban and rural landscape (punctual signals composed by a physical object: a building, a signboard etc.). Certainly, the urban hubs are new condensers during the rituals of users behavior (a widening, a square, but also a crossroads, a crossover and so on). Finally, it is also the neighborhoods, as defined urban structures (similar parts—two dimensional—of a landscape with morphological and building characters), not only for their functional status, but also for some settlements and formal aspects.

Re-conceptualizing these elements of the contemporary city means regaining current and fundamental elements of architecture, first of all restoring a new idea for the behaviors regarding the use of space.

6 A POSSIBLE WAY OUT: THE DESIGN OF THE CITY BY PARTS

6.1 *An integrated architectural and urban approach*

The basic question, which we are called to answer today, is the general role of the incisiveness of the architectural action in the present condition. For too long, the architectural practice has been developing a visual aesthetic, on a purely formal conception of the problems. Visual strength tends to exclude consideration of the structural aspects around urban and rural environment, where visual is not considered on a par with some historic, social and economic criteria for a complete outlook on the state of the city (Aymonino 1993).

On one side we still covet the single building as a chance for self-expression. On the other side, when a project has a wide range of issues, these are broken out into statistical entities with little grasp of the overall framework, with little understanding of its implications and its limitlessness, resulting from the intense cohesion of well structured parts. We need to look for new strategies that allow us to face new challenges. Greater than ever before, our challenge is to solve even increasing needs of our complex society for which no previous model exists.

The design of the city by parts can be considered a fairly clear assumption of any problem arising from the complex structure of the recent urban condition that involves, at different scales, both the knowhow of architecture and town planning as disciplines.

It is however evident that the problem of planning in the city is rather vague even if one accepts the method of the construction by parts and even if these parts are well-defined by their being physical parts. At any rate, to make the question clearer it would be better to redefine the sense of the parts forming the city and, above all, the quality and the structure of the new parts that make up the new town. If one rejects this kind of redefinition, or analysis of the quality of structure or dimension of such parts, one must accept all physical facts as elements of the city, without any qualitative discrimination.

It is possible to agree with this thesis on condition that it may introduce a judgement system, able to include both one physical part of the city and the city as a set of physical parts.

It might not be feasible to broaden this kind of judgement on the physical part of the urban settlement in order to include the whole city as a single structure, although it happens to consider a single building as a defined whole. This kind of paradox has an opposite one. The position of those who conceive and plan the city as a building is equivalent to the position of those who consider every building as a micro-city.

Anyway both of these tendencies are inclined to reject a functionalist approach. In fact, if we look at a construction as a neutral "container", as a space set to define the largest possible number of uses, we generally see that the building is an answer to problems arisen by the request for those uses which are still internal, in particular: these uses, although existing in the city, find in the building a condition for autonomy, in order to define an undifferentiated receptacle of a specific activity which may even not be permanent.

On the other side, if we considered the building as a multi-functional system, we would be able to admit a feverish construction of a presence of the building in the city by means of an overlapping of uses, recognizable inside the urban body by their own formal structure

It is possible to better define the relation city as a building or, as well, the relation city as an artefact, and consequently a part of the city as an independent artefact. It is, in short, a matter of considering a building as an individual and the problem of the role of a part in relation with the whole of parts forming the city (Polesello 1968).

6.2 *The order of a multi-scalar problem*

The design of the city is regarded both as an urban and architectural problem. It has been known that town planning is usually addressed to the general structure of the city, while architecture design, through a correct composition of the structures forming the city, is usually intended for stabilizing the relation between soil as use and physical body (a building, a square, a street, and so on). These parts of cities built around a public building or public space, are easily recognizable since their urban structure is clearly affected by this presence. If it is possible to take the category of use as a fixed and unchangeable principle, it could be possible to grant both the institution of a metric common to both scales of planning, the town planning scale and the architectural one, and the consistency with the double value system they involve.

Of course, these criteria are not adequate enough to develop this theoretical assumption. In other words the link between scalar use and physical structure does not develop in a linear way, and, if necessary, confirms Hegel's principle that continuous modifications in the quantity of homogeneous elements involve their quality (Polesello 1968).

But it is also true that from the theoretical point of view, therefore, it does not matter which scale is used thanks to the two-way relation: the urban sense of a building, and the spatial reason of the city (or part of it). But rather than two value systems, this is a problem of metrics which must grant the knowledge on any value concerning the city and its design. If we can interpret the part of the urban structure as a whole, we can operate and act according to one scale only.

6.3 *Two aspects of designing the city by parts.*

There might be two aspects that can help us to explain the problem concerning the design of the city by parts.

The first aspect concerns the relation between the object of architecture as an aggregation of elementary units and the existing city. It is true that this problem arises only for some architects that include in the context of the real city a module as a component of a "machine à habiter" (Le Corbusier 2007) or, conversely, the criterion of "building technology" (Archigram 1999). However we can find today in the recent production of the urban design some of these aspects, such as grouping pattern of the building cells, which are real numeral elements of the whole system. It is also true that since these patterns of building organization are based on a functioning complexity very close to urban complexity, they are proposed as a comprehensive alternative to the cities, or as a partial alternative concerning only the class of residence-service equipments.

All of these kinds of examples can neither exhaust nor show the meaning of the idea of possible part of the cities. These structures in the city when considered as a building or as a part of the city are foreign to the city itself, or coexist with it at the most. Their being foreign to the city regards not only the status of independence that consists of a high level of

autonomy from the other parts of the city, as an enclave (Davis 1992), but priority from the unwanted rejected formal relation with the existing city, with its artificial nature of human settlement. It is really strange how today that experiences, even more advanced than those proposed some years ago by the utopian vision of Archigram and Metabolism, do not, or cannot, give up the problems of formal perceptions, connected with the use of these technologies, and do not look, on the contrary, for more sophisticated technological uses not involving such a problem. These kinematic devices by the modern and recent technological statements are involved in coping with the nature by reproducing it in vitro, in the guise of comfort, sustainability, ecology, and so on.

The second aspect concerns the relation between (a part of) the city and the nature itself. This can no longer be considered an aesthetical relation, let alone the idea to transfer mechanically a part of the natural environment. Said otherwise, this relation should be found in a manner that attempts to address the ways in which architecture and the construction of space can be aesthetically environmental, that is to say not merely the one containing the notion belonging to the ordinary conception of nature, such as the ecological attitude on managing the eco-friendly structures, or maybe emphasizing the green approach to the urban planning. On the contrary, working around the authentic role of Nature means decoding the artificial configuration of the urban context by its "natural arrangements".

In this way, we must face a very interesting problem: if, in a well-balanced development of towns and territories, together with the targets of planned social and economic balance, we considered as extremely interesting also a suitable relation between natural and artificial landscapes, and then introduced the idea of site, existing town structure, typology and morphology of the different urban elements as material foe and of the planning process. All these materials belong to the artificial structure of the city, and here we can find the nature of human settlement, such as the built space as a physic structure of built architecture or the free space as the natural landscape. In the state of current city environment, it could be useful today to go backwards through the process leading from the city to the architecture and from the architecture to the architectures, trying to find out the deep roots and the connections linking together the architecture in the cities and by means of these connections to define, although partially, the urban problem. The relation between the essence of a territory and the essence of its building becomes a symbolic expression of all opportunities and implicit relations of human settling, the definition of its potential being a project in the future (Canella 1974).

7 AN OPEN CONCLUSION

Without massive scale investment in development, the city will continue to stumble along in its state of mediocre urbanism and public architecture whilst blindly eroding its setting.

The city spreads and extends all the way to the point where, while it tends to cover the entire orb of the planet, it loses its properties as a city, and, of course with them, those properties that would allow it to be distinguished as a structure to settle a community.

That should not be related only to a common sense of the ecological aspects of the urban environment, if it is possible to re-conceptualize it in an age of urban sprawl, multiple usage of public space and proliferation of the sites of political, social and cultural expression. To sum up, this essay tries to outline the paradoxical concept of "Nature" in the "artificial" context of the city. Urban activists continue to believe that the ideal of "city beautiful" and "garden cities" and most recently, the project of "urban renaissance" and "new urbanism", implies a return to the conservative conception of urban life, although history shows that building sociality through civic engagement between public and private space is one of the attempts at managing public space. From the classical Greek philosophers, theorists of urban modernity such as Benjamin, Simmel, Mumford, Lefebvre and Jacobs, and contemporary urban visionaries such as Sennett, Sandercock and Zukin, all suggest a strong link between urban public space and urban civic virtue as a way to reconsider the "Nature" of the urban environment. The reconstruction of modern town according to the morphologic and geographic parameters does not constitute a science fiction's vision. From this point of view,

assembly quotation and reduction of problems to their paradoxical limits are not ingredients of a strange immoral prophetic flight. On the contrary, the presence of reality and the necessity to propitiate future by provoking it too, justify in this case the recovery of some elements of the vision by reading the city as an entity made by parts.

Working in the city by its constituting parts means recognising firstly the nature of the city, then the importance of the natural settlement as a human artefact in the artificial environment of the city, and finally the building up of a single thought that articulates a sense of nature in the meaning of space, valid both for architecture and town planning.

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The Potential of Pavements in the Identity Conflict of a City

Dalia Abdel Moneim Osman
Architecture Department, Faculty of Fine Arts, Helwan University, Egypt
College of Arts and Design, Princess Nourah bint Abdulrahman University, KSA

ABSTRACT: Cairo has components that present its distinctiveness; the changes occured in a city are due to the alteration in the urban form of them. Its recognition is achieved when movement occurs through a street space; Walking is a remarkable mode; an interaction that exists between people and a place. Hence, it is essential to design and plan pavements to ensure potential for walking and promote the presence of people in the street space.

This paper focuses upon the significance of pavements in hosting pedestrians and discusses how it contributes to the discovery of a city. It explains the role of pavements in encouraging the presence of people in a street space, which acts as a lens for identifying a city through the recognition of its physical fabric. Finally, the paper recommends tools to address absent or deteriorated pavements, and based on successful designs, demonstrates how good pavement planning and design can reveal a city's identity.

Keywords: street space; pavements; deteriorated paths; city identity

1 INTRODUCTION

A city is a construction in space. Looking at a city produces an image, and on different occasions and for different people, its identity is explored. The identity of the city is mainly related to its image, in addition to other factors such as its history or function; these reflect on the visual image of a place as well. But its identity changes because cities change over time and only partial control can be exerted over a city's growth and form or function. There is no final result, only a continuous succession of phases. Moving elements in a city, and particularly people and their activities, are as important as other stationary physical elements. Many cities are remembered by their streets and people bring activities to their streets, but there should be space for them. The most common space is the pavement, which is the line between the street space for vehicles and the building line of different land uses. However, due to the increased traffic in the city of Cairo, for instance, people do not use pavements. They are inadequate for walking and in many cases they are absent. Based on a hypothesis that there is a relationship between a city's identity and its streets, the main objective of this paper is to confirm the role of the pavement in the shaping and the recognition of a city's identity, through introducing issues that affect pedestrians along their journey in a street space, and recommending five principal demands to be accomplished to achieve the main objective.

2 IMAGE AND IDENTITY

The image of the surrounding space is the result of a two-way process between the observer and the environment. The image of the surrounding environment may be analysed into three components: identity, structure and meaning (Lynch, 1960). An image requires first the identification of an object, which implies its distinction from other things and its recognition as a separable entity. This is called 'identity'. The identity of a place is achieved when the image

of a place is figured out, and this takes place by using other components as well the structure and the meaning for the observer (whether this is practical or emotional). Therefore, the identity of a place is related to its image and sometimes this is an overlap of many individual images of a place. There are some common elements that appear in the image types of cities (Lynch, 1960): paths, edges, districts, nodes and landmarks. However, there are other influences on a place, such as its history, function, value or social significance. Hence, there are a number of elements that contribute to the recognition of a city's image and consequently, the combination of these elements all point to the physical form of a city and its identity. The paths or streets are one of them, especially the memorable or valued ones.

3 STREETS AND RECOGNITION OF A CITY

Streets are the core elements of a city's structure and should possess unique identity. They experience a wide range of developmental changes through time. They are not just the corridor space between the two sides of buildings, but provide opportunities for other uses and activities, and direct access to buildings and spaces at their edges (Desai, 2014). This whole enclosure and the activities generated through these spaces create a unique experience and perception for users. They also give an opportunity to watch a city, which is an important activity for users. In addition, each street has its own role, unique pattern and historic values. There are various distinguished functions of a street and these functions also give a unique definition to a street. A city's districts can be remembered by the main function of their streets: some serve as a basis for social interaction, others provide business or commercial needs, historical knowledge, and, sometimes, just a beautiful vista of a city. They are memorable places within the space where our day to day life occurs in various ways and celebrate a region's unique qualities.

4 PEDESTRIAN PRIORITISATION

A city's streets are better for staying in and not just for passing through (Alexander et al., 1977). Unfortunately, today, streets have become only a path to move through, and not a place to stay or to enjoy passing through. Most streets have become 'centrifugal' not 'centripetal' for people, and although they should attract people to walk through them, they in fact drive people out. Walking is an enjoyable journey or experience, and there are many factors that affect both the possibility of walking and the presence and experience of people in any street. The experience gained by walking is much more than that gained through vehicles; an interaction occurs between pedestrians and their surrounding environment. This is a significant issue and plays a role in the recognition of a city. Historically, all of a street's activities were carried out with each other on one platform without any physical separation; however, now it is essential to arrange room for pedestrians in a street space.

Pavements are the most familiar place for people in a street. Their main function now is to separate pedestrians' movements from motorised ones, providing safety for people and decreasing the risk of accidents. In addition, they create a public space for people in a street space, providing a place for them to interact and socialise (Osman, 2016). They have another role in the recognition of diverse values in a city's streets. Encouraging walking in a suitable space down any street encourages culture identification, and historical and customary values, and the city is recognised by people (Movahed et al., 2012).

5 THE CONFLICT IN A PAVEMENT'S FUNCTION

Cairo has experienced a number of morphological changes during its history that have resulted in the formation of a discontinuous experience of the physical fabric. The streets of the newer part of Cairo are generally wide and straight. Conversely, the old city is characterised by its

Figure 1. Colonnaded arcade of a pavement on Ibrahim al-Laqqani Street in the Heliopolis neighbourhood of Cairo: Left, picture taken in 1930; Right, recently taken picture of the same street in 2012.

narrow, winding and intimate streets, where they were exceptionally well suited to movement and outdoor activities. Changes have occurred over time (in other distinguished neighbourhoods of modern Cairo too). Some have lost their distinctiveness and others still have part of their character, mainly reflected in the physical form. However the activities within them have changed (Figure 1). This occurred mainly due to the rapid growth of motorisation; streets were designed to give priority to the requirements of motor vehicles. Other activities were moved to other spaces away from the street space; these corresponded to people's daily activities. Pedestrians' movement has influenced the need for space and the space created was the pavement. Hence, from this point the conflict in the pavement's function has emerged. There were problems concerning its presence and status in streets, the obvious one is that affecting the safety of pedestrians. In Cairo, streets lack the presence of a suitable space for pavements, as a result there is not enough space to accommodate pedestrian flow, and other streets lack the presence of pavements. In some cases they are present, but occupied by other uses which block and hinder pedestrians. For these reasons, a rise in the percentage of accidents has been seen. In many streets, insufficient illumination is present and pavements suffer from a deterioration in their materials.

Also, it is essential to avoid the interference between pedestrians and bicycles on the same space, especially in pavements of short width. Pavements should be well illuminated and free of obstacles that may cause people to fall or be struck. Ramps between the pavement and street space provide better conditions for pedestrians with physical disabilities, the elderly and those with wheelchairs (Osman, 2016). These simple procedures can help to decrease the number of accidents, make it a more relaxing experience for pedestrians, help expand the number of shops, encourage walking, improve the ability to see objects and details of buildings, and provide recognition of a place's identity.

6 PERCEPTION OF A PLACE: FINDINGS

The findings of this paper were based upon the hypothesis that the physical fabric of a street has a critical impact on enabling or disabling the recognition of a city's identity, and that pavements are a common space for people in integrated streets. The following subsections cover the main issues identified during the course of this research and are thought to have an impact on a city's identity and its recognition; they are the major aspects of interaction for people during their journey along a pavement in a street space.

6.1 *Building fronts*

Streets are shaped by buildings' facades, not only by the buildings' shape or style but also by their angles. There is an interaction between building facades and the pavement space,

creating active vibrant edges. The treatment and modulation of the adjacent facades relative to the pavement space creates visual interest along the path. The existing uses at ground level identify the street space; one can watch the different uses while walking. Large openings create visual interest and identification of a place, and may expose activity within a building to pedestrians, helping them to integrate visually with the outdoor space. The colour and texture of the frontages have an impact on people and a place's identity through their contribution to the interest of people passing them.

6.2 *Building entrances*

The connection between a building and its adjacent outdoor space is the building's entrance. These should appear convenient and welcoming because they impact on the image and identity of a place, especially if they are featured, face the street and provide access to and from the pavement. Exterior transitions between the pavement and the entrance, such as stairs and ramps, also affect image, but should stay within the frontage. Finishing materials used in the pavement or textures on the front of entrances help characterise a place. Even names, numbers or historical information about entrances help identify a place.

6.3 *Street furniture*

Furniture provided on pavements affects the identity of a street; even its absence has an impact. Any element of street furniture should aim to provide comfort and convenience to the path; however, it can also be an obstacle if not well designed or located. Many streets lack the presence of street furniture elements; the most common example is the provision of a place to sit, which is a basic necessity. If comfortable and inviting places are offered in the pavement space, place identity will be affected, the pavement will be changed to a gathering place and its role as a liveable public realm will be enhanced. There are, obviously, different forms and locations of seats but, as a whole, just the idea of seating will allow a space to be identified and characterised.

6.4 *Finishing materials*

Pavements share in the reinforcement of a sense of place and they establish a city's identity. The materials used, colours and patterns of finishing have an impact on the identity of a place. New pavements should match those which previously existed, since this affects the image of a space. However, obstacles should be avoided when designing new ones, such as street furniture, retail displays or badly placed trees. In order to present to pedestrians a chance to watch and recognise the identity of a place, pavements should be accessible to people of all ages and abilities. Materials should be selected to minimise gaps and rough surfaces, especially for pedestrians using wheelchairs or prams (City of Boston, 2013).

6.5 *Streetscape*

The green space in a street helps to define a place, the greenery providing shade, reducing energy consumption and absorbing greenhouse gases. Besides these environmental benefits, it provides social and psychological ones. Trees present comfort, beauty and attractiveness. They create a focal point along a path and are a symbolic connection to nature. People are attracted to places where greenery is present and they are remembered for their image. In addition to changing light and colour, they create character that helps to reduce stress and restore a sense of calm. In the case of identifying a place, trees are used to fulfil a number of functions. Based on their location and arrangement, they can reinforce the rhythm of the building fronts along a pavement, focus linearity, define spaces, create a sense of enclosure, and add a ceiling to a space, as well as texture.

6.6 *Street illumination*

People remember a place through illumination. Appropriate pavement lighting provides a well-lit space to facilitate movement, creates a safe place for pedestrians and gives a street character. Features can be highlighted, as well as land uses and activity spots along the path; this can all be achieved through the use of appropriate street lighting. The lighting reveals the public space and any special area to encourage night-time use; many street pavements are characterised by the activities that take place in them late at night. In addition, street illumination used on pavements enhances the character of a streetscape by using various fixtures that reflect the image of a place and distinguish the unique look of characteristic districts in a city, especially the historic ones.

6.7 *People and activities*

Everyone is attracted to various activities that exist in a street space. The pavement supports different activities and not just movement. By contrast, a street's main space mostly only hosts motorised movements. The presence and types of activities depend on a number of factors, for instance, there are daily activities that relate to the presence of people in a place: walking, standing, sitting, watching, listening and talking. From a historical perspective, streets have played a role as meeting places for people. People meet each other, communicate and even sell goods. Every activity is carried out in full public view (Yang, 2012). City space has always served three vital functions: providing a meeting place, a market place and a connection space (Gehl, 2010). People gather and move about with others, seeking to place themselves near other people (Gehl, 1987). They will choose to walk in a lively street rather than an empty or low-density one; they react towards the presence of others in space. Social life and its quality are important for planning and reflect the image of a city. Safe and lively streets are also beneficial in the creation of a lively, safe and sustainable city (Yang, 2012).

6.8 *Cafés*

One of the images that pedestrians on pavements remember is the existence of cafés along a street. Most commonly, they are in an area in front of a street wall that is called the frontage zone. However, sometimes they occupy part of the pavement. This is reflected in the pedestrians' perception of the identity of a place. The extension of cafés or restaurants into the public way brings activity to the public realm (City of Boston, 2013). At the same time, attention should be given to the design and layout of street cafés to maintain pavement functionality. Regulations should be in place to organise and monitor the impact of pavement cafés on pedestrian movement and environment, so that a clear accessible path for people can be maintained.

6.9 *Street soundscape*

The soundscape of a place is its sonic or acoustic environment, with the receiver or listener at the centre of the sonic landscape (Porteous & Mastin, 1985). There exists all types of sounds; ones that distract or annoy people, based on acceptable risk, and others that are regarded as positive, preferred or desirable (Brown, 2004). The fact is that whether the soundscape of the outdoor space is desirable or not, it has an important effect on the identity of a place. There are various sounds that are heard, such as those made by people talking and walking, nature, musical instruments, vehicles or activities. However, the sounds that convey the identity of a place are the dominant sounds that can be heard. The sound environment of a street plays a significant role. Each city has a unique acoustic profile, the composition of which derives from various sound sources that can be divided into preferable and undesirable sounds.

6.10 *The modal split*

The mode of movement within a city is split into a number of categories: vehicle, pedestrian and cycling. The movement along a street is an important factor that has an impact on a place negatively or positively and, at the same time, in other cases can identify it. The identities of many cities around the world have been transformed due to changes in the type of movement within them. For instance, all streets in the medieval city centre of Copenhagen were filled with cars, and as car traffic increased, conditions for pedestrians rapidly deteriorated. However, in 1962, Copenhagen's main street, Strøget, was converted into a pedestrian-only area (Gehl & Gemzøe, 1996). Many other streets and squares followed and were converted into pedestrian areas as well, allowing various activities to take place.

The gradual transformation of the city centre from mainly vehicular traffic to pedestrian has led to a change in Copenhagen's culture and character. Outdoor activities and life were developed, even though the temperate Danish climate makes it more difficult to develop public life. On the other hand, the historical district of the old city of Cairo has suffered up until now from the deterioration of its characteristic urban form. This has been due to an increase in unplanned car traffic and the appearance of new uses. Both have impacted on the city's character, threatening the urban form as well as the historical buildings, thus changing its identity.

7 DISCUSSION

The significant findings of this paper revealed that street status has an impact on the conflict in a city's identity. This was determined through the interpretation of the answers to two major questions: what is being watched during the journey along a street, and what is its influence upon the perception of a place? The findings are presented through major interacting aspects that are reached in the paper, and these aspects are illustrated during the people's journey along the street space. The conflict in a city's identity arises because of the absence of dealing with a street as a place. Streets are being managed as a means of access or links only; however, they should be considered as spaces for other activities as well, because this has an impact on people's perception of a city.

So it is essential to consider a street as a place, in order to provide people-oriented activities and flexible spaces. These additions will contribute to creating the identity of a place, be a memorable experience for a city's users, residents or visitors, and will help in maintaining the existing identity.

Pavements are major components of a street and they represent the people's space within it. Poor pavements and their disappearance often create weak environments for walking and hence affect the recognition of a place. It is recommended that consideration should be given to designing and planning pavements with regard to their major function as links and places for pedestrians; a link where movement exists from one point to another and a place where activities are performed. If these two major functions are fulfilled in the pavement's design and planning, observations of a city will occur more readily, and the character of a place will be revealed.

To assure the implementation of the major functions of pavements and to achieve the main goal of creating pavements with positive impacts upon the recognition of a city's identity, it is recommended that five principles be incorporated into their design and planning. The first is to provide accessibility to encourage people to use, walk around or reach their destinations regardless of physical disabilities or age. The second is to address the comfort aspects and these include consideration of climatic conditions, as well as location, morphology, proportion, scale, public infrastructure and services. The third principle is to assess the safety aspects, which refer to the extent to which pavements encourage people to use them and walk without the fear of tripping, falling or being attacked. This includes establishment of well-lit pavements, short walking distances, flat surfaces and maintenance of surfaces. The fourth is the legibility aspect, in terms of the signs, visible features and various paving

materials that are used. This reflects the character of a place and a distinctive pavement gives people a clear image of where they are. And finally, the participation aspect, fulfilled when good pavement conditions encourage people to walk, participate in street life and communicate with other people.

8 CONCLUSION

Pavements are a major component in a street space; they are the spaces which people use mainly for walking. This paper has revealed that there is a relationship between the presence of pavements in a street and the recognition of the identity of a city; they contribute to the definition of the character and life of a city. It is concluded that this relationship takes place through a number of elements and attributes that are revealed while walking along a street, such as the building frontages and entrances, streetscape, people, activities, modes and soundscape. And this relationship can be easily achieved when pedestrians are encouraged to participate in a street space through the promotion of walking and various related activities. This, in turn, requires a space to be provided for pedestrians, which in the case of integrated streets will be pavements. Thus, although pavements typically exist to fulfil the promotion of walking and providing safety, this paper has shown that they have another function. They have a major role in facilitating the recognition of a city's identity because they promote the observation and recognition of the city. Therefore, this function of pavements must be given consideration in their design and planning.

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Towards sustainable slum development: A performance evaluation approach for slum upgrading plans in Egypt

Shaimaa A. Magdi
Faculty of Engineering, Fayoum University, Egypt
Faculty of Engineering, Cairo University, Egypt

ABSTRACT: Slums are the worst outcome of urbanisation in Egypt. 'Slum upgrading' became a necessary strategy for improving living conditions, in order to achieve the Millennium Development Goal on Environmental Sustainability. This paper aims to establish a deeper understanding of how 'informal areas' (or 'slums' as they are more commonly known) emerged and were activated in the Greater Cairo region. Moreover, it aims to highlight the major strengths and weaknesses of slum upgrade plans, and may provide a useful approach for performance evaluation of these plans. Measuring the performance of slum upgrades is a complex task because of the diverse processes involved. The research in this paper develops a set of parameters for performance evaluation of slum development plans that were either in-site developments or new reallocation plans. This new approach evaluates the quality of the upgrade through a full review. Residents' questionnaires, aimed at measuring user satisfaction with performance quality aspects, were used across four case studies in the Greater Cairo region.

Keywords: Slums; slum upgrade; Millennium Development Goal; environmental sustainability

1 INTRODUCTION

Slum development has been and continues to be the dominant mode of urbanisation in many developing countries. It is now well understood that slums, and their related informal settlements, are a spontaneous form of urbanisation consisting of a series of survival strategies by the urban poor, most borne out of exclusion (HABITAT III, 2015). The most serious problem of informal settlements in Egypt is one of economic and social security, which influences the safety and stability of Egyptian society as a whole (Hegazy, 2015). For many reasons, the Greater Cairo region is surrounded by 'informal areas' (or 'slums' as they are more commonly known) and, in 2014, they housed approximately 10.5 million people (CAPMAS, 2016); Cairo has been suffering from its surrounding slums for some 30 years (Kipper, 2014). A multidisciplinary integrated approach to evaluat and upgrading slums in Egypt is a key factor essential to sustaining the city's image and identity.

2 CONTEXTUAL FRAMEWORK

2.1 *Problem and research context*

Informality is a multidimensional socio-economic problem and has appeared as a disease in the urban fabric. Informality comes in many forms, but in most cases it emerges as a result of the inability of cities to absorb population growth within a formal and planned urban framework because of the absence of affordable dwelling options, inadequate building, inadequate planning regulations and lack of suitable housing finance. Many recent studies of slums have pointed to the fact that the majority of the world's population are concentrated in urban

areas, reaching 6.3 billion inhabitants in 2012 (Potter, 2012). About 15.5 million Egyptians live in more than 350 slums and almost 40 per cent of these slums are in Cairo. They emerged against the background of rising house prices and the urban crush of the last few decades (HABITAT III, 2015). Informality is a multidimensional problem emerging as a result of inadequate planning strategies and lack of regulations. Given that the Egyptian government has developed many slum upgrade plans, there is a need to focus on plans which promote sustainable development in the coming years. Many slum upgrade plans have focused only on infrastructure development and rehabilitation strategies, and have neglected sustainability objectives as well as socio-economic initiatives to improve quality of life, and to decrease the gap between community needs and government policies.

2.2 *Research hypothesis*

The main hypothesis of this paper is based on a belief that multidisciplinary evaluation approach can play a vital role in slum upgrade plans because it seeks to develop a deep understanding of slum living conditions, and to learn from their socio-economic possibilities in order to respond to their future needs.

2.3 *Research objectives*

The main objective of this research was to propose a comprehensive approach to evaluating the performance of slum upgrade plans. Providing a proactive and sustainable development will manage the complexity of slum upgrade plans in the future.

2.4 *Methods and methodology*

The research methodology consisted of three main parts, as shown in Figure 1 and described in the following sections. For the third part, this paper developed three levels of investigation. The first was to plan a review (using an observation method) which produced a quick snapshot of a slum upgrade plan. The second one was the use of resident questionnaires within interviews designed to measure the performance of in-site upgrade plans. The third one was a detailed survey of reallocation plans not yet implemented.

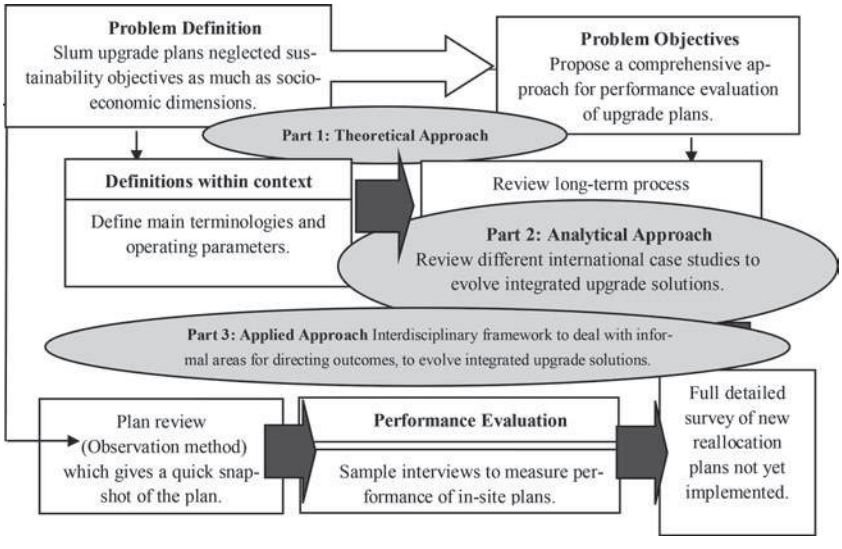

Figure 1. Research methodology.

3 THEORETICAL APPROACH

3.1 *Definitions within context*

Urbanisation processes have been a significant engine for development in countries, which, in turn, has had important effects on global sustainable development. However, rapid urbanisation has introduced various problems, such as air pollution, traffic congestion, habitat destruction, and loss of available land, which represent threats to the sustainable development of urbanisation in these countries (Shen et al., 2017). In considering the success or otherwise of upgrade plans, it is important to define a number of key terms employed in this context:

- sustainability – a continuous process for the assessment of the existing built situation. The community development of new needs should outline the long-term vision for sustainability. Many cities around the world have developed sustainable urban development plans for leading their urbanisation process towards the desired status of urban sustainability (Fancello et al., 2014). Urban sustainability indicators have been selected as the main elements for determining how successful slum upgrade strategies are (Shen et al., 2013).
- performance evaluation – determining a value for what something is worth. It is important to establish a value for all or part of the built environment because performance addresses the extent to which an upgrade plan has supported goals and objectives and satisfied user needs. Informal areas (or slums) have been products of insufficient housing policies in Egypt since 1950, and a new approach to solutions is needed in order to improve slum quality of life. Informal settlement dwellers are disproportionately affected by ill health, violence and many other socio-economic challenges, which are largely connected to the unhealthy and unsafe physical conditions within which they live (Luthango et al., 2017).
- slum definition – the term 'slum' has generally been associated with any urban society formed outside a legislative framework (El Kholy, 2014).

3.2 *Slums – reviewing the long-term process*

The recent definition of informal areas in Egypt has been cited as 'All that is self-built, in the absence of law and urban regulations'. This classification includes areas built on agricultural land and deserts (GOPP, 2007). Urbanisation on agricultural land was the result of a horizontal extension of villages surrounding the capital, combined with a form of urbanisation extending from Cairo city itself (Séjourné, 2012). Informal areas in Egypt were classified into four grades, as shown in Table 1.

Table 1. Classification of slums and approaches to dealing with them.

Informal Area type	Description	Management strategy
Grade 1: areas that are threats to life	Under or above sliding geological formations. In floodplain areas. Under threat from railway accidents.	Clearance. Demolition and resettlement.
Grade 2: areas with unsuitable housing conditions	Buildings made of makeshift materials, for example, shacks. Sites unsuitable for building, for example, solid waste dumping sites. Derelict buildings.	Reallocation. Demolition and resettlement.
Grade 3: areas with health risks	Lacking accessibility to clean drinking water or improved sanitation. Located in the vicinity of industrial pollution or located under electrical power lines.	In-site upgrade. Regulation and legalisation. Development.
Grade 4: areas of instability	Areas located on the territory of state-owned land. Areas located on the territory of sovereign quarters.	Development and formalisation.

In general, slums were built up around three main ideas: construction on someone else's land, construction without following technical rules, and construction without respecting planning regulation (Silva & Farrall, 2014; Sims, 2003).

3.3 *Slum perception in Egypt*

In Egypt, the terms 'informal area' and 'slum' have been negatively perceived by the majority of people as places of illegality, problems and crime. However, they act as a housing solution for a major sector of the Egyptian population (Halim, 2014).

Cairo owes most of its physical growth to the development of informal settlements as they inhabit more than 65 per cent of the city's population (Sabry, 2009). According to Khalifa (2011), 'unsafe areas' are territories in which 50 per cent of the housing structures satisfy one or more of the conditions listed in Table 1, ordered according to the degree of risk and thus the urgency for intervention. Approaches to deal with slums have ranged from demolition and resettlement to formalisation.

4 ANALYTICAL APPROACH

Sustainability parameters are crucial in spatial analysis and planning in urban development policy as they affect the governmental and community actions in and at local/regional levels. The analytical approach highlights how slum upgrade plans are responsive to the needs of society, and investigates dynamic demands and impacts within international plans.

4.1 *Reviewing international slum upgrade plans*

Many slum upgrading plans were reviewed as part of this study in order to identify the most important strengths and weaknesses of informal settlements. Slum upgrades in South Africa had several main objectives. First, to promote social cohesion and improve quality of life for the poor; second, to support the functioning of the entire single residential property market to reduce duality (Magalhães & Villarosa, 2012); finally, to utilise housing as a tool for the development of sustainable human settlements (Napier, 2013). However, it was found that there was an apparent gap between the policy and the reality of implementation, characterised by many problems: the lack of community involvement and choice in the decisions of slum upgrades, lack of access to well located land, limited funding for land acquisitions, lack of capacity and material resource leading to delays in project implementation, poor quality products and settlements, a slowdown in housing delivery, limited or decreasing public sector participation, and the continued growth of informal settlements in the cities (Ziblim, 2013). Kibera in Nairobi has one of the largest slums, with approximately 8,000 residents

Figure 2. Living conditions for slum residents in Kibera before and after upgrade (Ferreira, 2007).

over an area of 2.5 km^2. Its upgrade programme offered an affordable opportunity to many residents, which included rehabilitation, ownership/structured owners, and long-term rather than short-term sustainability (Mutisia & Yarime, 2011) (see Figure 2).

From the previous review, it can be concluded that the selected plans were integrated into the city by means of road and infrastructure improvements, combined with social facilities. The solutions proposed for urban and housing problems are compatible with the objective of improving the quality of life and the environment in the cities. Upgrade plans should emphasise society partnerships, involve sustainable development objectives, including economic and social measures (as seen in Brazil).

5 APPLIED APPROACH: PERFORMANCE EVALUATION

The past 25 years have witnessed a range of slum upgrade plans for informal areas, which have concentrated on supplying infrastructure and repainting building elevations while neglecting environmental, social and service issues. Involving sustainability parameters is a must in the upgrade actions framework in order to enhance urban context, social and economic cohesion, and changing city identity. Sustainability aspects and specific parameters were selected from the theoretical and analytical approaches for testing in the subsequent part of the methodology.

5.1 *Evaluation process and methodology*

As previously indicated, three levels of investigation were developed. The first was to plan a review (using an observation method) which produced a quick snapshot of a slum upgrade plan. The second one was the use of resident questionnaires within interviews designed to measure the performance of in-site upgrade plans. The third one was a detailed survey of reallocation plans not yet implemented. Resident questionnaires aimed to measure user satisfaction with performance quality aspects of two in-site plans (Ezbet Khairallah and Masken Zenhom) in the Greater Cairo region. Statistical techniques were used to assign values to different parameters in a suggested performance matrix.

5.2 *Performance evaluation scope and measuring parameters*

A multidimensional evaluation matrix was constructed using parameter values and dimensions ranked according to expert opinions. To assign weights for each selected parameter, a simple questionnaire was designed for local urban and architecture design experts. The following steps were taken:

Table 2. Ranking aspect results.

	6	5	4	3	2	1
Ranking aspects in descending order	Urban morphology & housing efficiency	Services & facilities	Accessibility	Environmental & health wellbeing	Amenity—safety & privacy	Socio-economic facilities
Assignment of proportional weights due to ranking	1	0.8	0.6	0.5	0.3	0.2

1. a simple online questionnaire method was used among 27 experts in the field of urban planning and upgrade to rank evaluation aspects selected from the theoretical and analytical approach stages; weights for these aspects were then assigned;
2. evaluation aspects were ranked on the basis of the expert questionnaire (see Table 2);
3. a performance evaluation matrix utilised the residents questionnaires to measure the upgrade performance on a two-point evaluation scale (negative or positive influence) then calculating the percentage of positive influenced residnets
4. a field survey was undertaken in order to create a snapshot evaluation of the parameters in reallocation cases (e.g. Imbaba Airport), which have not yet been occupied;
5. the overall performance for each parameter was calculated by multiplying the assigned weights by the percentage of positive resident reporting.

5.3 *Case studies within performance evaluation*

Four informal area case studies in the Greater Cairo region were selected (Ezbet Khairallah and Masaken Zenhom as in-site upgrade plans, and Imbaba Airport and Asmarat districts as reallocation plans) according to the following selection criteria:

- areas are located in two different governorates;
- areas are within a similar distance of the capital;
- physical characteristics are representative of real population and living conditions.

These case studies are briefly described below. A total of 65 persons in each selected area were interviewed and investigated. The questionnaire was designed with evaluation parameters seleccted from the analytical stage.

5.3.1 *Ezbet Khairallah*

(Ezbet Khairallah represents one of Cairo's largest informal settlements (see Figures 3 and 4). The population is about 650,000 residents in 480 feddan (~460 acres) on a rocky plateau south of Dar el-Salam. The projects have been funded by different sources: the European Union, the World Bank and the German Agency for International Cooperation (GIZ). In the last 10 years, the government started to install water, sewage and electricity infrastructure in this area.

5.3.2 *Masaken Zenhom*

Masaken Zenhom has 4,000 housing units for 20,000 inhabitants. It was an in-site development on 50 feddan (~48 acres) (see Figure 5). Before upgrading, housing units were wooden units made by the Cairo government for those who lost their units in the Aboelrish area. They stayed in these units for 30 years until the project started in 1998. It was completed in 2007 and was divided into three phases (see Figure 6). Services provided were schools, youth centres, culture centres and a charity hospital. Since 2009, the project has lacked sustainability provisions and rapidly deteriorated in performance.

Figure 3. Open spaces in (Ezbet Khairallah).

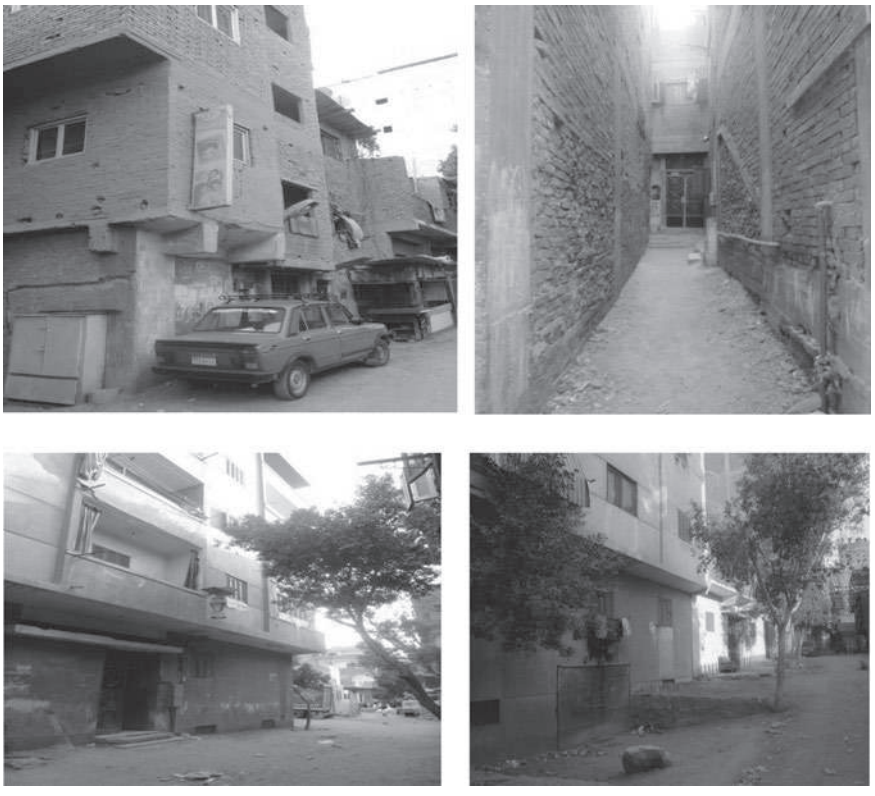

Figure 4. Conditions of buildings and streets in (Ezbet Khairallah).

Figure 5. Buildings and streets in Masaken Zenhom after upgrading.

Figure 6. Masaken Zenhom upgrade plan phases.

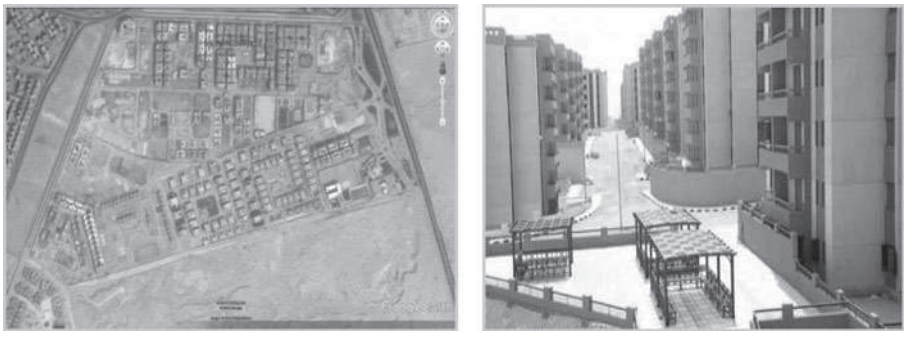

Figure 7. Buildings and streets in the Asmarat district project.

Figure 8. Buildings and streets in Imbaba Airport.

5.3.3 *Asmarat district*

In the first phase, a total of 6,258 housing units were constructed on 65 feddans (~63 acres) (see Figure 7). Meanwhile, the second phase included 4,722 housing units, plus hospitals, schools and other public utilities on 61 feddans (~59 acres) at a cost of EGP700 million (financed by the Long Live Egypt Fund). Three schools were also built in the Al Asmarat district that aimed to service the new residents moving to the area. Al Asmarat first and second districts were previously delivered in Moqattam, comprising a total of 11,000 housing units.

5.3.4 *Imbaba airport*

Imbaba Airport in the Imbaba area, Giza Governorate, is considered one of the most populated and unplanned urban areas of Egypt, with 700,000 inhabitants. This plan was developed as a cornerstone of the North Giza regional development plan concerning slum upgrades at a local level. It was located in North Giza district within an area of 204 feddans (~196 acres). The upgrade plan was developed with three main phasing levels: first was the airport land development as an action plan; second was West Mounira as a local urban plan; third was the regional level for North Giza as a whole at the action planning level. The development utilised a policy of gradual replacement. Components of the land use plan were: residential area of 52 feddans (~50 acres) for 5,000 families (see Figure 8); public gardens of 38 feddans (~36 acres); 69 feddans (~66 acres) for economic investments; service centres of 26.6 feddans (~26 acres). The proposed upgrade project provided Imbaba with the basic, necessary infrastructure and services. Playgrounds, youth centres, a student sports city, public parks and green areas were also planned, but the target population has not been achieved yet.

5.4 *Evaluating slum upgrade plans*

An indicative review utilised an observation method checklist (see Table 3) which gave a quick snapshot of each case study and highlighted major strengths and weaknesses.

5.4.1 *Performance evaluation for case studies*

Strengths and weaknesses of sustainability performance evaluation in six dimensions were identified and linked to parameters in their contexts. Table 4 represents the findings of questionnaire

Table 3. Case studies general aspects checklist.

Parameters	Ezbet Khairallah	Masaken Zenhom	Asmarat district	Imbaba Airport
Mixed land use	✓	✓	–	–
Vitality	✓	✓	–	–
Open public green space	–	–	✓	✓
Market availability	✓	✓	–	–
Space organisation	✓	✓		✓
Good smell and noise reduced	–	–	✓	✓
Accessibility managed and secured	–	–	✓	✓
Flexible street shape network	–	–	✓	✓
Crowded vehicle flow	✓	✓	–	–
Availability of transportation nodes	✓	✓	✓	–
High densities	✓	✓	–	–
Social mix and backgrounds	✓	✓	✓	–
Low maintenance	✓	✓	–	✓
Distribution of activities	–	–	✓	–
Social communication and participation	✓	–	✓	–
Local security and amenity	–	–	–	–
Poor income	–	–	–	–

Table 4. Sustainability performance evaluation results for case studies.

Aspect	Weighting according to Ranks	Weight per parameter	Upgrade performance parameters	Sustainability performance evaluation questionnaire (Ezbet Khairallah		Masaken Zenhom		Asmarat district		Imbaba airport	
				%	Total	%	Total	%	Total	%	Total
Urban morphology and housing efficiency	1	0.1	Legible visible structure	10	1	87	8.7	97	9.7	1	0.1
		0.1	Legible visual image	70	7	95	9.5	95	9.5	1	0.1
		0.1	Site quietness	12	1.2	17	1.7	100	10	0	0
		0.1	Playground availability	93	9.3	97	9.7	100	10	1	0.1
		0.1	Public space availability	10	1	12	1.2	100	10	1	0.1
		0.1	Children's play area	0	0	0	0	100	10	1	0.1
		Aspect total performance		19.5		30.8		59.2		0.5	
		0.1	Good housing conditions	10	1	27	2.7	100	10	1	0.1
		0.1	House area > 50 m^2	10	1	15	1.5	100	10	1	0.1
		0.1	No. of rooms > 2	12	1.2	0	0	0	0	1	0.1
		0.1	No. of family members 4	6	0.6	12	1.2	20	2	0	0
		Aspect total performance		2.8		2.7		12		0.3	
Services and facilities	0.8	0.26	Walkability to services.	37	9.62	83	21.58	90	23.4	1	0.26
		0.26	Availability of education service	0	0	0	0	100	26	1	0.26
		0.26	Availability of health service	0	0	70	18.2	70	18.2	1	0.26
		Aspect total performance		9.62		39.78		67.6		0.78	
Accessibility	0.6	0.3	Accessibility to public transport	97	29.1	75	22.5	95	28.5	1	0.3
		0.3	Accessibility to work	56	16.8	34	10.2	12	3.6	0	0
		Aspect total performance		59.32		77.88		121.7		0.3	

Environmental and health wellbeing	0.5	0.125	Cleanliness	17	2.125	30	3.75	100	12.5	1	0.125
		0.125	Air ventilation in units	14	1.75	80	10	100	12.5	1	0.125
		0.125	Pollution minimised	12	1.5	40	5	90	11.25	0	0
		0.125	Waste separation units inside	83	10.375	0	0	0	0	0	0
		Aspect total performance		15.75		18.75		36.25		0.25	
Amenity—safety and privacy	0.3	0.075	Feeling safe and secure	32	2.4	70	5.25	78	5.85	0	0
		0.075	Increasing resident's control	78	5.85	56	4.2	58	4.35	0	0
		0.075	Local amenity availability	5	0.375	70	5.25	76	5.7	0	0
		0.075	Children play outside units	30	2.25	45	3.375	86	6.45	0	0
		Aspect total performance		10.875		18.075		22.35		0	
Socio-economic facilities	0.2	0.04	Surrounded by relatives	84	3.36	12	0.48	37	1.48	0	0
		0.04	Liveability and vitality	94	3.76	70	2.8	15	0.6	0	0
		0.04	Supportive neighbours	96	3.84	80	3.2	17	0.68	0	0
		0.04	Community participation	97	3.88	45	1.8	0	0	0	0
		0.04	Social communication	86	3.44	65	2.6	63	12.6	0	0
		Aspect total performance		14.92		10.4		13.88		0	
Overall resident satisfaction		Satisfied with upgraded housing units		10		84		100		0	
		Satisfied with services		0		35		100		0	
		Satisfied with accessibility		98		46		78		0	
		Empowering district participation		13		18		0		0	
		Overall satisfaction		123.984		183		278		0	
		Total performance		132.785		198.385		332.98		2.13	

method and graphs were created to evaluate the outcome measurements and compare the four case studies (Figures 9 and 10).

Parameters Numbered as shown in matrix on × axis

Figure 9. Total performance and overall satisfaction for case studies.

Figure 10. Parameters of performance for each upgrade plan studied.

The Asmarat district achieved the highest value in total performance (333) and resident satisfaction (278), Masaken Zenhom came second (total performance score of 198) while EzbetKhairallah had the lowest performance and resident satisfaction.

6 MAIN FINDINGS

1. The applied evaluation approach highlighted the aspects neglected in the upgrading plans: socio-economic facilities and environmental health and wellbeing.
2. In-site upgrade plans were not able to deliver expected outputs. The plans did not move residents' lifestyles towards healthier living.
3. Reading the matrix vertically shows the most neglected parameters that achieved negative influence (shown in grey colour in each studied area). The matrix showed the numerical assessment of the upgrade plan performance evaluation based on community perspective and sustainable performance parameters. It shows the percentage of positive influence of the upgrading parameter. Accessibility, services and facilities achieved a highly positive influence.
4. Reading the matrix horizontally gives a comparative analysis between the four case studies (in-site development and reallocation cases) within each individual parameter.
5. An average of total value for parameters shows the overall performance of each aspect for each case study. Asmarat district, a reallocation plan, achieved the highest total performance with 332.98 points. In terms of in-site upgrade plans, Masaken Zenhom achieved a higher score than Ezbet Khairallah.
6. Asmarat district achieved the highest resident satisfaction and, in terms of in-site upgrade plans, Masaken Zenhom scored more highly than Ezbet Khairallah.

6.1 *Analysis of findings*

With regard to in-site development plans in terms of the performance aspects of morphology and accessibility, Ezbet Khairallah and Masaken Zenhom achieved the highest values in availability of playgrounds, accessibility to public transport, safety and security facilities, and walkability to services. Both achieved low values in the aspects of housing efficiency, environment and socio-economics. Over 90 per cent of residents investigated in Ezbet Khairallah were not satisfied with the upgrading plan.

In terms of the performance of the reallocation plans, Imbaba lacked the development dimension as it focused on the urban morphology parameters while neglecting socio-economic aspects. This resulted in no life achievements for the past six years. It is obvious that there was no social participation from residents or Non-Governmental Organisations (NGOs) in the upgrade plan because it was carried out by the government in order to achieve the President's programme for slum development. Asmarat, which was recently finished, performed better in urban aspects, transportation, accessibility and availability of services, such as public open spaces.

6.2 *Conclusion*

The above findings reflect the conceptualisation of slum problems not as housing problems, but as the product of an underlying socio-economic problem that needs to be redefined and addressed in Egypt. After analysing the upgrade plan dimensions and evaluating performance with the test matrix, it was found that the case studies were concerned with morphological dimensions and neglected social, environmental and economic dimensions. This showed that in-site upgrade plans did not improve the quality of life for slum residents and did not enhance environmental or social aspects. This supports the hypothesis of this research.

On the basis of the Imbaba Airport case findings, it is concluded that some slum upgrade plans were a form of political propaganda and did not enhance the quality of life for resi-

dents nor did they support local community needs. This particular plan was developed from political decisions and was a central plan developed by the Giza Governorate without any coordination or participation from the local community. Reallocation upgrade plans show the most strengths and the fewest weaknesses; otherwise, gradual replacement could be an effective upgrade solution in the case of there is available land for replacement in the same site The results of this research can provide valuable guidance to planners and decision makers of sustainability indicator programmes and planners of new programmes. This evaluation approach for upgrading plans provide an interdisciplinary framework involving social and economic aspects. It developed a sustainable performance evaluation framework by identifying the main objectives and outcomes of upgrade plans. Using the suggested matrix for a sustainable slum development could help manage the complexity of future upgrading plans in Egypt.

6.3 *Key recommendations*

- Redefine the parameters of informal areas within the delivered matrix for comprehensive balanced slum upgrade plans.
- In-site upgrading is always preferable to reallocation, in order to maintain social and economic networks. If there is going to be relocation, it should be to well located land.
- Informal settlement upgrades always need to be part of an integrated housing strategy that includes a range of delivery options to meet differing housing needs.
- , It is important to have reliable and up-to-date information about community to work on for an integrated development Real community participation is essential at all levels from strategy to project implementation; participation in allocation processes, layout design and unit design is particularly important.
- Residents are the experts in their own area; they have the best knowledge of their problems, causes and possible solutions.
- Resident's real needs should be investigated through a user satisfaction questionnaire and survey, especially for young people, women and the disabled.

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Urban identity and lifestyles of gated communities in Egypt

Mohamed M. Abdelaziz Farid
Department of Architecture, Faculty of Fine Arts, Helwan University, Cairo, Egypt

Alaa Mohamed Samy Ahmed
Canadian International College, El-sheikh Zayed Campus, 6th of October City, Egypt

ABSTRACT: At the end of the twentieth and the beginning of the twenty-first century, the urban landscape faced a rapid and dramatic increase in Gated Communities (GCs) in most of the cities around the world. As part of the trend in suburbanisation, such changes in the urban environment are often due to change in lifestyles, which is an important factor in urban identity. This paper represents the ways GCs are identified and defined in Egypt, and focuses on identifying the main lifestyle factors influencing their urban identity. These factors should be taken into account by planners, designers and policymakers to minimise negative impacts and maximise positive consequences. The findings confirm that GCs of Egypt have special lifestyle characteristics. The paper makes some suggestions for strengthening and sustaining the remaining urban identity of gated community features that are likely to be part of the urban landscape for a long time.

Keywords: urban landscape; urban identity; residential gated community; lifestyle

1 INTRODUCTION

The notion of identity is a set of meanings that reflect local traditions, culture and aspirations. It reflects their needs, their successes, their failures and their future. At the urban level, identity can be defined as a process where people interact with places and describe themselves in terms of belonging to a specific place (Lynch, 1981). Its concept has gradually become a major issue in contemporary urban planning due to changing lifestyles in most cities worldwide. Urban identity has an influence on cities and their users, and its continuity is an essential tool in creating meaningful and liveable cities.

The issue of urban identity in Egypt is not a new topic, but reviewing and evaluating urban identity in new gated communities (GCs), which are located in the extensions of Cairo city towards new cities, as their numbers increase makes the challenge of maintaining urban identity appear to be one of the biggest tasks of this century.

1.1 *Object of the research*

The main question concerns local identity and the differentiation between GCs, as many have a kind of international identity (Italian, Greek, etc.). Therefore, the research question is 'How to manage the change and sustain the remaining urban identity of GCs?' This entails a review of the ways GCs are identified and defined in Egypt, identification of the main factors influencing their urban identity, and reviewing the various lifestyles offered by specific GCs in Egypt.

1.2 *Research methodology*

The research methodology was based on an inductive approach through a theoretical study of the phenomena of GC and the concept behind their spread, by defining the various

categories of GCs and their main features. The history of GCs in Egypt and their associated lifestyles, and deducing the relationship between their lifestyle and mass media was also studied. A deductive and analytical approach was used on a case study of various categories of GCs in Egypt. Analysis of lifestyle factors that influenced urban identity was then carried out in order to identify which GCs offered a unique identity and lifestyle.

2 THEORETICAL FRAMEWORK FOR THIS STUDY

2.1 *The phenomenon of gated communities*

In the late twentieth century, an ancient urban form began to reappear in modern settlements (Judd, 1995). After several centuries, there were many definitions used to conceptualise the phenomenon of GC. This paper defines GCs as self-contained separate communities with carefully constructed identities (Baycan-Levent & Gülümser, 2004) where entry is controlled and public open spaces are privatised (Low, 2003). They have emerged as a new trend in the housing market, appearing comparable but likely differing in their history, reasons and physical features (Low, 2001). According to Blakely and Snyder (1997), there are three main categories with different degrees of facilities, exclusivity and security. The first type of lifestyle communities often highlights leisure activities, with recreational amenities, facilities and shared services at their centre. The second type is a prestige community that often highlights the attractive richness of its environment and the quality of security, concentrates on exclusivity and privacy over community, and does not often include common facilities. The third type is secure communities with controlled traffic and maintenance of property values, which reflected people's fear of crime. In the next section, a review of the types of GCs that were identified and defined in Egypt will be given.

2.2 *Gated communities in Egypt*

GCs demonstrate a new phase in the urbanisation of Egypt. They first appeared as summer and 'rest houses' in the coastal zones but, by the mid-nineties, the Egyptian government began to search for new urban developments where the housing communities were the main spine. The government sold large portions of public land to the private sector that offered new options for standards and styles of living with unique urban identities. There are a number of variables which played an important role in reshaping the visual perception of the urban identity through the intensive use of globalised lifestyles; these attracted people by focusing on visions and modernity through media and marketing advertisements. In addition, they appear to guarantee an idealised vision of an appealing lifestyle. The field study will analyse the urban identity and lifestyle of GCs in Egypt.

2.2.1 *Lifestyle of gated communities*

Development companies represent GCs as a complete lifestyle rather than a house in a residential environment. This given lifestyle is pre-designed, planned and constructed to fulfil the demands and needs of every social class. According to Bali (2009), the identity of residents that belong to a city has been replaced by belonging to a lifestyle offered by a GC; it is called 'town citizenship' (Aydın Yönet & Yirmibesoğlu, 2015). Nevertheless, there still appears to be a sense of belonging to or identification with a GC. Mutual relations associated with a specific identity in a sociocultural setting establish a sense of community in combination with physical measures; this can lead to an 'us and them' community. The gates have a double function of social control, as they include look-alikes and exclude those who are different; residents identify themselves with a social form, which is influenced by internal and external forces (Aalbers, 2003).

2.2.2 *Lifestyle and mass media*

In the contemporary world, the impact of mass media or mass advertising on showing individuals' status or the formation of their status cannot be ignored. As a matter of fact, these

instruments inspire people to mass consumption. GC advertising commercials often tell of a lifestyle. They promise that residents will belong to a specific social environment thanks to the leisure activities provided within the community, and that children can safely run in the garden and participate in various activities. Generally, the declaration of the architectural style, or a design characteristic of a famous architectural style, and the lifestyle would be enough. On the other hand, GCs have recently started to include middle-income groups in the promotion of these projects, emphasising the price range and the payment schedule as well as the social activities and constructional attributes, while marketing material that targets the upper classes gives information about specialised sports facilities and shopping centres specialised for high-income groups. Thus, the promise of community lifestyle became a good marketing tool.

3 APPLIED RESEARCH

As of 2010, there were more than 450 GCs and their numbers are still on the increase (Soliman Muawwad et al., 2011). Most are located in new urban areas found east and west of Cairo, where they form an extension of Cairo city in the direction of the new cities of New Cairo, 6th of October and Sheikh Zayed. Therefore, the applied research within this paper analysed many patterns of urban identity in one of the most important and fast-developing regions on the edge of Cairo city.

3.1 *Types of gated communities in Egypt*

Through observations during site visits, analysis of features and promotional data, four categories of GCs were identified. These were primarily based on physical features, characteristics that form each type, residents' lifestyle and identification of housing types.

3.1.1 *Luxurious gated communities*

Luxurious GCs are similar to prestige GCs; however, they differ in the diverse social status of their residents, and segregation from the rest of the community remains the main reason to live in them (Aalbers, 2003). These types of communities are completely gated. The developer targets the upper-high economic class by presenting a new concept in the Egyptian urbanisation experience (Charmes, 2012). The resident lifestyle in this kind of GC offers groups of features; for example, security, facilities, amenities, richness of landscape views, privacy and the best property values. An example of such GCs are Allegria, Westown City, PalmHills.

3.1.2 *Moderate gated communities*

Moderate GCs are similar to the lifestyle-type GCs but with some different characteristic elements. The developers are highly concerned about the quantity of units in the community in order to achieve the best profitability, so apartment building is the predominant type. They also have an exclusive medium-cost residential subdivision which has moderate features and amenities, some of which are not completely gated. This means that they are partially open to the public and depend on the potential business of non-residents, as well as residents, in the use of shared recreational facilities (Almatarnah, 2013). This sharing of lifestyle choice with others from outside the gated community does bring with it security issues (which may be a minor secondary factor). Examples of this type of GC are El Rehab city located in New Cairo city.

3.1.3 *Lower-high gated communities*

The form of housing in this type of GC appears to be different. Apartment buildings are clearly the affordable answer for such GCs. Residents with lower-high economic status can afford to live there; however, the price of properties and the presence of amenities and features also differ from one gated community to another. While lower-high-income GCs remain a relatively expensive choice compared to city properties, they provide residents with security and a better lifestyle. Examples of this type of GC are El Masraweya, Al Karma.

3.1.4 *Affordable gated communities*

These are an exclusive economic housing development with essential amenities and small lot sizes intended for normal-income families. They vary from other GCs primarily in terms of their selling value, the minimum lot size, the developed area, the amenities and street networks provided. Many residents of these subdivisions earn too little to purchase a home in GCs or in surrounding areas, making the demand for them low. However, the number of affordable GCs is increasing today because many employees want to live in affordable homes that are close to their jobs. Examples of this type of GC are Ashgar Heights, Continental Gardens.

3.2 *Reasons for case study selection*

The four categories of GCs described are based on their physical features and the characteristics of lifestyle associated with each type. The following GCs were chosen as case studies: Allegria, El Rehab, Al Karma and Continental Gardens. The selected case studies are located mainly in New Cairo, Sheikh Zayed and 6th of October. The analysis was carried out by the use of observation gathering methods based on the difference in lifestyle factors that were most prominent across the GCs. These factors can be grouped under the following subcategories:

- security (gates, fences, traffic limits and social control);
- exclusivity and privacy;
- social (sense of community, social activities and relationships);
- environmental (landscape elements); and green areas
- architectural and urban character.

3.3 *Observations of the case studies*

The following analysis was completed by undertaking site visits, perception, a survey of GC designs and an examination of the lifestyle factors.

3.3.1 *Security*

Security was seen as an important factor in choosing a residential environment. It was used to promote a lifestyle in advertising material for most of the GCs.

Figure 1 shows the security used in different GCs based on controlled gates supported by 24-hour private guards and controlled traffic. Fences surrounding the GCs also provided social control. Figure 1 indicates that developers used the different types of security to instil a sense of security. Luxurious GCs appear to have the highest level of security.

3.3.2 *Exclusivity and privacy factors*

Exclusivity and privacy factors are promoted to address the needs of residents in terms of their desired lifestyle. The use of gates and walls fulfil a dual function of offering social control as well as exclusive activities, such as special sports, swimming pools, water features and landscaping. Developers create an exclusive lifestyle and offer immediate membership of a community where residents identify themselves with a social type. An exclusive lifestyle and private environment are highlighted in the slogans and images of the GCs' marketing material, so that it instils a sense of exclusiveness and privacy as a ready-made lifestyle.

Figure 2 indicates that privacy and exclusivity are more important factors in luxurious GCs than in any other types because they have the most valuable amenities. For example, Allegria has a world-class golf course.

3.3.3 *Social factors*

GCs use social factors in their promotional marketing materials. They often display images of a happy family with elegant style to respond to a potential resident's emotional need for social activities, a social relationship between residents, and a sense of community.

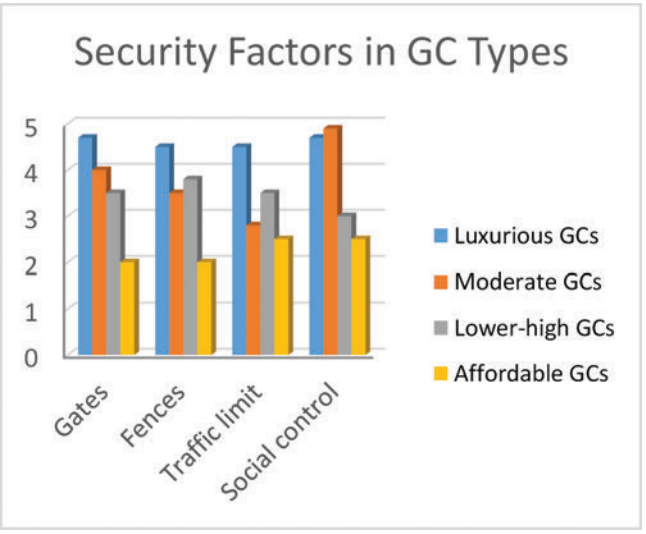

Figure 1. Percentage of security factor in each GC type.

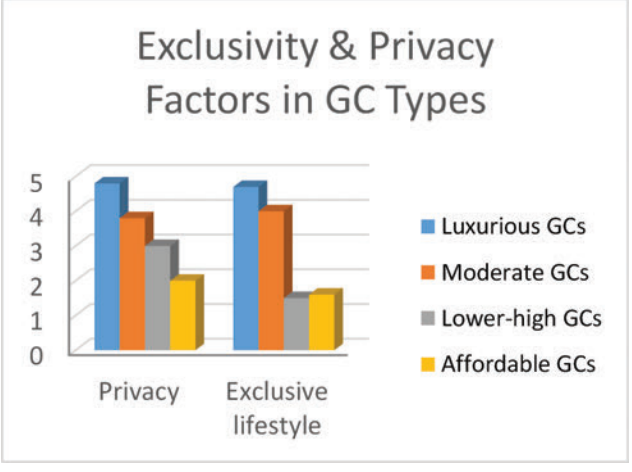

Figure 2. Percentage of exclusivity and privacy in each GC type.

Their hierarchy of open spaces that create social networks gives their residents a sense of community. As in moderate GCs (Al Rehab), building apartments are arranged in clusters and surrounded by courtyards. They are interconnected by a pedestrian network bordered by green strips which increases the social interaction between residents.

Figure 3 indicates that residents of luxurious GCs highlighted social activities as the most important social factor.

3.3.4 *Environmental factors*

The environmental factors are often displayed as green areas, richness of views, good climate and ease of maintenance in each type of GC.

Figure 4 shows the various environmental elements assessed. Green areas were present in about 70 per cent of luxurious GCs and 40 per cent of moderate GCs. The amount of green space per person decreased in affordable GCs.

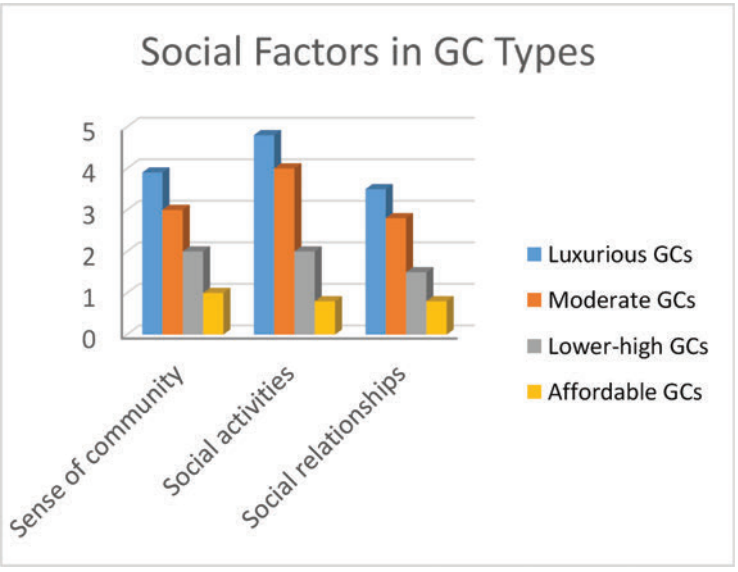

Figure 3. Percentage of social factors in each GC type.

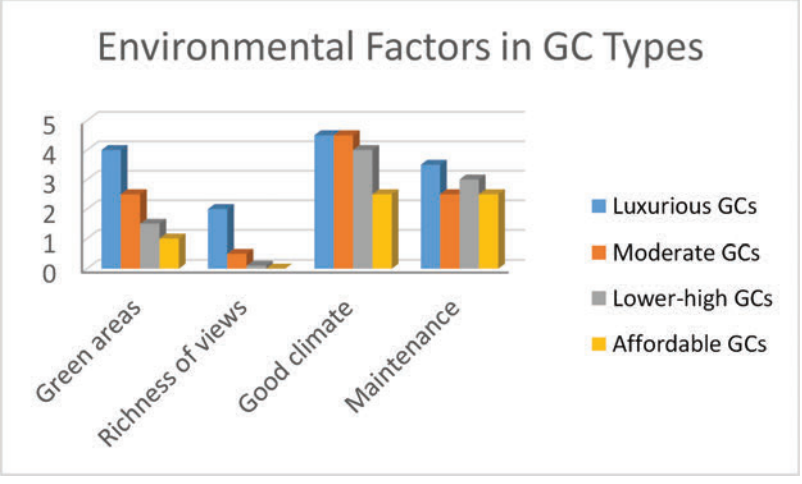

Figure 4. Percentage of environmental factors in each GC type.

3.3.5 *Architecture and urban character factors*

Urban character can be grouped under the subcategories of land use facilities, urban fabric, road network, and squares and open spaces. Figure 5 indicates that planned land use involves a variety of facilities, especially on luxurious and moderate GCs. Also, GCs Urban fabric which determins the features of the urban structure, various between linear, semi-pointed. The hierarchical road network used to define each zone depends on the design concept employed.

Architectural character elements can be grouped under the subcategories that affects the visual perception of building character, as the housing type, modernity of the architectural style, the balance of the skyline, opening shape, relation between building scale with human scale, level per apartments, quality of finishing materials, exterior paint colour, exterior texture, and porosity which indicate the ration between the opening to solid walls.

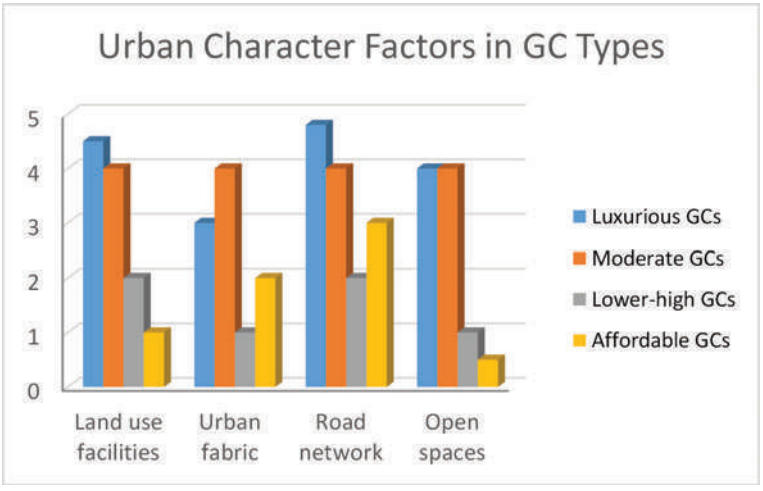

Figure 5. Percentage of urban character factors in each GC type.

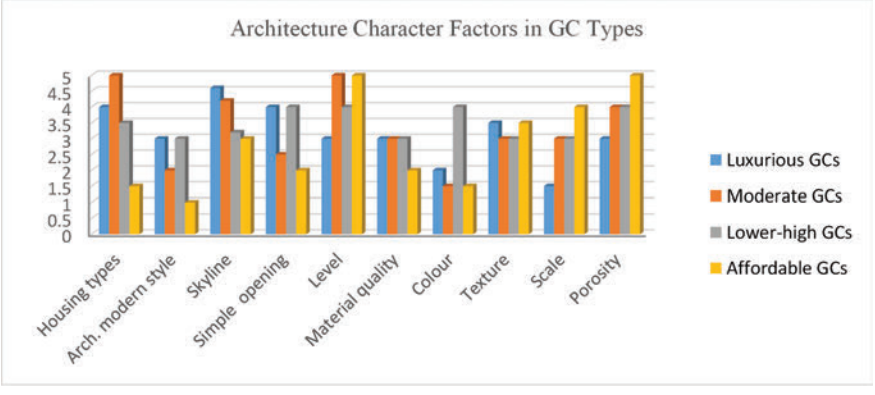

Figure 6. Percentage of architectural character factors in each GC type.

Figure 6 indicates that moderate GCs have various housing types and consists of a group of neighbourhoods each with a different design, character, and urban housing pattern. Furthermore, most of the GCs used a Western architectural style. The building ratio decreased in luxurious and moderate GCs so that they had a smooth-flowing skyline, while affordable GCs have dynamic and balanced movement in their skyline. Luxurious and lower-high GCs have the simplest of opening design shape than other GCs. The number of levels in affordable and moderate GCs ranged from four to five. The exterior material finish ranged from stone to paint, with affordable GCs using only paint; a light colour was used except for the lower-high GCs, which used darker colours. Human Intimate scale used in most of the GCs, the affordable GC have the most range of porosity than other types.

4 CONCLUSION

The study concluded that developers of GCs highlighted their housing as special compared to other property. They purport to offer their residents a unique lifestyle by using the various lifestyle factors to convey a sense of community. Finally, the identity of a GC resident's has social belonging to the lifestyle offered.

Developers used lifestyle factors to promote a unique lifestyle by offering a GC property as a package for a balanced life. This encourages the audience to desire the lifestyle and sells the concept of GCs.by instil a sense of community and thus increase their investment potential.

In their promotional marketing material, GC developers highlight that their developments offer a more secure community than non-GCs. They represent GCs as a specific social environment thanks to the leisure activities provided within the community. Many of the GCs are expanding and are becoming large-scale, which actually reduces the sense of community and isolates them from the main city.

Finally, the study concluded that, theoretically, GCs have the potential to create a strong local identity as they bring citizens together with common interests. In order to establish architectural and urban identity, there are essential terms for planners, designers and policy makers:

- a comprehensive definition of urban and architectural identity, explaining the theory of identity for modern society;
- reinforcing the factors of identity and recognition;
- creating factors which reflect the urban identity and ignore meaningless elements; designing symbolic components, elements and prominent architectural signs in the built environment.
- reducing turbulence of urban features and preserving similar spaces;
- constituting close relationships between people and urban society through direct and routine contacts.

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Graphic


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From national disgrace to cultural heritage and international film set. The case of Matera (Italy)

Ina Macaione, Antonio Ippolito, Anello Enrico & Roberto La Gioia
Nature_city lab, DiCEM, University of Basilicata, Matera, Italy
Are_lab, Massafra, Italy

ABSTRACT: The change in Matera was born when it was declared a 'national disgrace' by De Gasperi and the 'the shame of Italy' by Togliatti[1]. While Italy was recovering and developing from the Second World War, Matera had an agricultural identity. This case was brought to light in the book 'Christ Stopped at Eboli' edited by Carlo Levi and others sociologists, anthropologists and began to be seriously interested in the city until the laws on '*Risanamento dei Sassi*' started a process of renewal, bringing Matera to UNESCO Heritage. A cultural and architectural change supported the ability to be natural film set. An intuition of Carlo Lizzani emerged with Pier Paolo Pasolini and its 'Il Vangelo secondo Matteo', Mel Gibson with its 'The Passion' until 'Ben-Hur' in 2014. Now Matera is an open-air movie set, a city full of art, history and architecture. It is unique and part of the world's heritage.

Keywords: Matera; agricultural identity; architectural change; cultural change; world's heritage

1 INTRODUCTION

To regenerate a city is to satisfy urban, socio-economic and environmental needs expressed by the population. Citizens, through actions and reversible processes, are able to influence the development of the city. In this perspective, besides having an active role in shaping the surrounding environment (Bandura, 1999). The city can't be compared to an 'immutable institution' but to a set of interactions between citizens that create a constantly changing system. 'Places, temporalities, and processes of change are the product of social interactions; they are the result of different processes, and the contextual character of change found a plurality of paths and diverse narratives constitutively heterogeneous, and they are socially constructed, an achievement never definitively accomplished, in a tangle of stories simultaneously becoming' (Cremaschi, 2008).

'The city is something more than a congeries of individual men and of social conveniences-streets, buildings, electric lights, tramways, and telephones, etc.; something more, also, than a mere constellation of institutions [...]. The city is not, in other words, merely a physical mechanism and an artificial construction. It is involved in the vital process of the people who compose it; is a product of nature, and particularly of human nature' (Park et al., 1925).

It is now known that the urban or environmental landscape is a system where the processes and elements that compose it are in continuous interaction between themselves, and Man's ability is, in fact, to make changes in order to make a place were living Consequently, man can be considered an important agent: a modifier of the landscape.

Therefore, cities need to be understood as process of flows that with physical actions are able to valorise the existing environmental, geographic and logistic conditions of the territory. In fact, actions of different stakeholders are constantly affected by the political processes. In this

1. This definition does not have a precise date, because it was born following a visit to Matera.

context, the definition of resilience is important because it 'is the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to reorganize, change, and learn in response to a threat' (Cutter et al., 2008). This concept appears in ecology where it is defined as the capacity of an ecosystem to respond to anomalies without changing the processes of self-organisation and basic structures. It is also considered to be the capacity to regain a steady state after a disturbance.

This is the case of Matera, a town that, throughout its history, has experienced many changes. It is a real example of a resilience change that has enabled the city of 'Sassi' to achieve, like few others, the regeneration that has made it famous worldwide.

«to where among the mindful traces of past stories appears the resilience. In its elastic fluidity, one discovers the bio-diverse population, in the crisis, in the regeneration of the city. So, in the various times of living and in spacious types, the great enters the small: humanity, landscape, nature and the world, penetrate as icons, well within the matter. In living the limit, the 'mind' of architecture expands. In the heterotopia of the Nature-City the almost nothing nature is more where you expect it (Sichenze, 2014)».

Matera is a city in which is present a «'strange form' of existence is nothing other than the 'time to live'. A time which is always different. Like life. Materialised in Matera in its being a hybrid, from the Gravina to the streets of the Sassi, to the Corso, to the 'alternative' street of the Beccherie, to the pathways in the modern neighbourhoods of the Renaissance (Sichenze, 2014)».

In our research, Matera, is a city that meets the requirements of a Nature-City. A city that possesses within itself the germ of a 'new beginning' and hence has a vital character that, beyond the difficulties of surviving the moment, allows it to resist the devastating impacts that are putting a strain on the world's urban economy.

1.1 *Background. About the research*

To measure the degree of resilience of a city is complicated and passes through different indicators. Linking again to a definition of a biological nature, you might say that architecture, especially in a city, is like an complex 'autopoietic' organisation. This definition merges with that of resilience: it is, once again, the identification of a system that has an affinity with biological nature and looking to the city as an organism that can grow and eventually collapse after a state of shock.

We define resilience not only as the property of recovering from an unpredictable event but also an innate capability to find new resources to react against a negative situation. It has been several years that, due to the general economic conditions, we have been in a situation of uncertainty. As depicted by the legal and social scientist, Charles Sabel, who was one of the first to address to expose the concept from the industrial production theory to the government politics, the rigidly vertical organisational model typical of modern western democracies, and their institutions, was to be replaced by an experimental continuous learning one, just like it had been done by the innovative enterprises (Sabel & Zeitlin, 2010).

From the management point of view, it is necessary to choose an organisational system that favours the independence and responsibility of the people where the results and not the processes are evaluated. From the planning tools point of view, we should use the most flexible tool possible (e.g. strategic territorial development plans) and define the principles of planning through a set of integrated tools. (This shift has been particularly relevant for urban planning in Italy, a country that used to have a very strict 'architecture' of interdependent yet different types of plans).

Identity and new technologies are both important to build resilience.

In his independent report Fabrizio Barca (former Minister of Cohesion Policy of the Italian Republic) describes a 'model for the territorial development (economic and social) that contains the definition of a resilient community' (Barca, 2010).

This approach sees, in the conflict between endogenous (local society) and exogenous (know-how, technologies) elements, the possibility to produce innovation, starting by social equality. This is crucial for our discussion because enhancing the human and social capital is

one of the actions that can create a resilient community. It is, once again, the quality of the people that determines the result. So, while the local people care about the city they are living in more than outsiders do, their capability of being smart and having a set of light tools, instead of a pedantic series of procedures, makes them able to solve a situation of uncertainty, even producing innovation.

What conditions must be met in order for a city to be defined as a Nature-City?

We use, once again, the research and study of Nature-City theory[2] to find out that there are 10 key of reading, that also allow us to assess the degree of resilience of a city.

They are Naturalness (linked to nature), Landscapeness (linked to the earth), Representativeness (linked to the city), Domesticity (linked to the house), Insularity (linked to the boundary), Co-Existentiality (linked to ecology), Topicity (linked to archaeology topicity), Time Depth (linked to time), Centrality (linked to the world), Initiality (linked to phenomena) (Macaione, 2007; Macaione, 2016; Sichenze, 2000; Sichenze, 2006).

The key feature of sustainability is resource efficiency, for which a solution could be the principle of using without possessing applied to each type of resource (buildings, roads, vehicles, offices and people); the important thing is knowing how and where to find it.

Sustainability also means creating structures to live in a beautiful place and not to keep them under control with technology.

Sustainability is also declined to pay attention:

- to think in advance about the consequences of our design actions, with great attention to natural systems, industry, culture, etc.;
- to carefully consider the flows of matter and energy in the different systems that we develop;
- to give priority to human activities and not consider living beings as simply 'factors' within a process;
- to design by providing 'real values' to users;
- to treat the 'content' as something to be created, to be transformed, not as a thing to sell;
- to treat the environment, time, cultural differences, as positive values;
- to focus on services, not on things, so as not to invade the planet with unnecessary items.

"Therefore, we need a culture that is based on a sense of community and connectivity and is, at the same time, fun, challenging and responsible, following four fundamental principles:

- to eliminate the concept of waste (any waste from a cycle must become raw material for another cycle, just as happens in ecosystems);
- to reduce the transportation and distribution of goods;
- to involve as many people as possible while consuming less raw materials;

to use the natural energy flows (Thackara et al., 2000)."

To all this we must add a strong desire to make a 'cultural'. Thus emerges the relationship with resilience: resilient is a city that respects its identity and complexity (an almost oxymoronic combination), making each involved process is respected.

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2. This research is part of a series of design experiences in which the relationship between architecture and the city, which featured the most significant lines of research of the Italian School of the project, are currently evolving into a new School of the project, in which it is decisive the theme of the emptiness, that has a major importance also in Eastern cultures. According to this new approach of the disciplines of the project, nature takes on a new centrality. This means that the thought of the *limit in architecture*, as a result of the analysis that goes down from the city to the building, has an opposite correspondence (from the particular to the general) in the *translimitation* that occurs through a sensible *void-making* in the built. The *Italian School of Nature-City*, proposed and established twenty years ago by Armando Sichenze and Ina Macaione, has been developed along two parallel lines of research. The first concerns the comparative reading of about 150 cities in the Mediterranean Europe, especially in Basilicata, among whom Matera, where over the millennia has been taking place a close comparison between western and eastern cultures. This reading is useful to discover the conditions of existence of the urban qualities through which a settlement recognizes itself as a city. The second study concerns the reinterpretation of the thinking about the city of the Italian architects in the late twentieth century.

2 MATERA: THE NATURE-CITY

2.1 *Regeneration strategy*

The most interesting example of this regeneration strategy is the environmental and architectural rescue of the Sassi of Matera. Matera is, in fact, being regenerated into a new form of housing, through the creation of new cultural places as well as widespread hospitality. These ways of regenerating, combined with the environment, the archaeology and the city structure, can be the beginning of tourism in the nature-city world.

Matera could be considered to be one of the most representative examples of a city where tourism is the way of changing. Matera is now a symbol. How many cities in the world have been regenerated in their nature as well as in their civilisation? A lot of cities have been rebuilt, for example those that were bombed or were theatres of natural disasters. But which city has been able to recover from the shame of its history, and how? Only Berlin has done so much! The regeneration processes of Matera and Berlin were obviously based on different circumstances. The subhuman living conditions present in the historical Centre of Matera in the Sassi, in contrast to the extraordinary human and environmental landscape. From the early fifties, Matera has demonstrated that it has an ecosystem of its own. A self-reliant structure, with regenerative functions and the ability to make exchanges with the outside world.

This paper cannot describe how Matera and the Sassi became part of the UNESCO world heritage list or European Capital of Culture in 2019, but can only summarise the the adopted process. The houses, which are the basic entities of a city, have been regenerated through contact with both the depth of the earth and the openness of the landscape, so that the value of the whole overcomes the sum of its parts.

The accommodation facilities are turned into residential buildings and represents a model of a different way of living the past experience.

The resulting is a complex system of varied accommodation facilities (bed & breakfasts, five-star hotels, beautiful mansions, etc.), and of places of knowledge. This condition is the characteristic of the process of Matera. Where a rich ethnic, eco-cultural and gastronomic condition, is able to connect the different insular habitats of which a city is made up of. In this way the domesticity thus becomes the engine for co-existentiality, increasing possibilities and lifestyles, uncovering inner resources and encouraging external (foreign) exchanges, all typical features of the Nature_City theory.

In Matera, the variety of tourist offerings and housing is matched with the historical urban centre, as bio-diversity is to the gorge, which is the natural historical centre of the city. Among these two centres the "operators of exchanges" in the ecosystem of the nature-city can be found: the birds (hawks, buzzards, swallows, doves, etc.) because are able to make the environment alive.

Eyesight can be used as a coup d'oeil, a tool, to describe the landscape. Through this coup d'oeil the city discloses its time depth, showing its archaeological sites, ruins, museums, parks. The narrative culture, therefore, regenerates itself and becomes representativeness.

The nature-city of Matera has an inner ability to sustain tourism due to the existence of a natural archaeological park (the Murge), as well as its historical architecture and urban landscape. These basic parts are so closely tied together that they are inclined towards a deeper mutual connection, at times completing each other, while at others limiting each other.

This would explain, at least partially, why today even famous personalities from the world of culture remain superficial when visiting Matera. With the exception of those equipped with a cultural understanding capable of thinking, as Carlo Levi or Pier Paolo Pasolini.

2.2 *Our discovery: Matera's DNA*

Matera has been designated European Capital of Culture 2019 not just for what it is or for what it has done, but also for what it is expected to do.

In this context, for example, the space set aside for contemporary cultural forms would be the mark of new features to promote the territory and its international personalities. The program should be supported through a cultural dynamism, which enhances the identity of the places that are developing innovative cultural products.

But there are some problems!

Now Matera is very famous in the world, but few people study and understand the Matera phenomenon, its strategy and its true identity.

It happens to be the case that the spokesmen of today's post-industrial society but the 'potable water', as we know, has a different history in Matera. To which the following written pieces refer.

From the 1980s onwards, within Matera, during and after the restoration of the Sassi, new vital energies were born, and the way of planning itself was changed, transforming the old poverty into the richness of a unique biodiversity of living, where citizens learn to 'seek oneself' in the city.

This vision of the future, deeply rooted in 'Matera's DNA' (Sichenze, 2014), has guided our research. Also, despite its extraordinary visibility, this living capital has unbelievably vanished from the scene in the last years, melting into a sea of events more related to consumption than to cultural production. Maybe to anesthetize and domesticate the forces which, at least in the last fifteen years, have produced the regenerative value of Matera, is necessary implement is necessary to implement the resilience capability. This too will be an interesting phenomenon to study. And Matera will become, once again, an advanced observatory. This time it is going to be an observatory of the phenomenon the 'European Capital', in addition to a laboratory of urban regeneration. Here the richness of the life rooted in nine thousand years of history must inevitably be faced, even in Italy today, with the 'new poor' in power.

Thinking about local inhabitants and to those who come to Matera to learn life strategies because it is a city that can regenerate itself because here, life is changing once again.

The new change in Matera is related to its ability to be a an heritage place. A natural movie set that, since the 1950s, has inspired some of the most famous national and international directors; in this place, in the past called a 'national shame', major Hollywood producers have decided to set their own screenplays.

Initially the Sassi were used as a symbol to document the backwardness and poverty of the South. Then, thanks to anachronistic aspect that characterises them, the old district of tufo (stone) have been able to host the most diverse film productions. Among the most important productions should certainly be remembered, in 1964, that of 'Il Vangelo secondo Matteo' by Pier Paolo Pasolini. The director from Bologna was the first to notice the similarities that unite the Sassi of Matera with the Middle East locations at the time of Jesus. This film began a long series of religious-themed productions related to the birth and death of Christ (APT, 2007; Bencivenga et al., 2013). In the following decades, the city of Matera began to be better known, becoming an ideal set for many other Italian and foreign productions, even Hollywood productions. Some of the most famous actors and directors on the world stage have come to Matera. It is impossible not to mention the famous Hollywood star Richard Gere, Mel Gibson, Catherine Hardwicke, Morgan Freeman and so forth.

That films are good for the tourism in the city that represents a constantly evolving phenomenon for the territory. And the places saw on the big screen are important in promoting cultural tourism and for the economic growth of Matera.

For the crisis of Italy, film tourism is a rapidly growing phenomenon and is an important safety valve for economic growth.

3 CONCLUSION

The most important questions should be: what can Matera and its territory tell to other cities in Europe? And what can the local cultural realities share with European ones. For example, the development of creative projects in response to the challenges that Europe faces: smart growth (integrated urban planning of a city of culture and knowledge which is able to combine economic development, culture, creativity and digital technologies), sustainable growth, or (the consideration of scarce environmental resources) and inclusive growth (promotion of intercultural dialogue—considering the changes taking place in the Mediterranean basin—and social inclusion).

We need to involve the city and the citizens. A European Capital of Culture should be attractive (able to converge the local and national population, but also foreign tourists) and active (involving the entire city, region and more distant places). The city should be encouraged to develop a program with lasting effects that can fit into the long-term growth of the city itself. It should not be just an ephemeral outburst of cultural events. For example, cities are asked to build projects and long-term partnerships, characterised by economic and organisational sustainability. The event will be an opportunity to change or to consolidate and develop cultural activities in the city.

Within this context, characterised by a series of initiatives and events sponsored by the city of Matera, we want to create an international working group for the establishment of a new kind of School. The desired result is to create, through this new centre of cultural aggregation, a collaborative network of people and cities that want to share experiences related to urban regeneration projects.

The project is being developed in collaboration with other institutions.

The Nature-City_LAB Dicem, University of Basilicata, co-ordinates a section of the project that deals with 'Architecture and City.' This section is part of a broader framework consisting of parallel units—divided by themes. Each unit still complies with the general ideas of cultural development, but it is autonomous in terms of training courses offered, time and organisational rules.

The 'Architecture and City' section intends the school as the centerpiece of cities and a multiplicity of architectural cultures that meet in Matera: a great place to research new possibilities for urban regeneration, on which different communities (local, urban, scientific) can compare themselves.

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Strategies of creative thinking for solving design problems in the field of graphic design

Maha Mohammed Khalil Mohammed Elboksomaty
Design and Communication Graphics, Faculty of Fine Arts, Alexandria University, Egypt

ABSTRACT: The research discusses strategies of creative thinking for a graphic designer to use in his or her designs. It presents and explains the different strategies that can be used in the creative thinking process such as the brainstorming strategy, strategies to solve problems and more. The strategies discussed are mainly presented for the designer to identify design problems and come up with solutions through his or her designs as deemed important by the researcher. The research will cover information about creative thinking, as well as its types, such as critical thinking, innovative thinking and creative thinking skills which encompass originality, flexibility, fluency, and ability to think outside the box. Additionally, it will focus on the concept of creativity, thinking, and the scientific divisions of creativity levels such as expressive creativity, productive creativity, inventive creativity, innovative creativity, and imagination creativity. The research will explain, as well, creative thinking through the theory of gestalt and the gestalt principles in the field of graphic design. It will introduce the theory of Guilford for creative thinking as well. The aim of this research is to study the strategies of creative thinking and how designers may use them in their designs.

Keywords: graphic design, creative thinking, brainstorming strategy, critical thinking, innovative thinking

1 INTRODUCTION

There are strategies of creative thinking for the graphic designer to use it while starting in his or her designs, which could be obtained by learning the creative thinking strategies such as the brainstorming strategy, strategies of solving problems, and more. The researcher aims to manoeuvre through two kinds of strategies of creative thinking known as the brainstorming strategy and the strategy to solve problems. These strategies are especially and significantly beneficial for the designer and are being defended in this research through results of questionnaires. Details for such measurements shall be thoroughly explained in this research. Similarly, creative thinking skills and types such as critical thinking, creative thinking, innovative thinking; skills that encompass originality, flexibility, fluency, and the ability to think abstractly will all be covered by the researcher. The research will focus on the concept of creativity, the concept of thinking, and different scientific levels of creativity. The research will explain, as well, creative thinking through the theory of gestalt, the gestalt principles in the field of graphic design as well as the Guilford theory for creative thinking.

2 RESEARCH PROBLEM

The problem and results presented in this research is centred around the concept of creative thinking and its usefulness in solving design problems in the field of graphic design, and discovering the ability, or lack thereof, of the designers utilising it.

3 RESEARCH IMPORTANCE

Firstly, the graphic designer has to be aware of the concept of creative thinking and the strategy behind creative thinking. The graphic designer must follow a strategic method of creative thinking that is suitable for him or her in the creation of a certain design.

4 MEASURING RESEARCH TOOLS

A questionnaire for graphic designers, specifically senior students in the graphic design department, will be distributed to measure the awareness and utilisation of creative thinking strategies in a designer's work.

The concept of creativity

Gardner, a scientist and a professor in Educational Graduate Studies College at the University of Harvard, stated that a creative individual who can regularly solve problems and develop new findings, or ask questions in a particular area, is characterised by seriousness and gains the acceptance of the community. *(Grown, Fathi.(2002). Creativity. Jordan: Dar Al-Fekr. Page. 26)*

The different divisions and levels of creativity according to Taylor

- Expressive creativity: was defined as free expression that the originality and the efficiency is not important for it, it does not need skill, and it is important for the appearance of the other levels of creativity.
- Productive creativity: A type of creativity that is linked to the development of machines, a product or a service.
- Inventive creativity: invents new styles that includes the work of explorers and inventors who show their genius by using innovative materials and styles.
- Innovative creativity: Refers to the continuous development of ideas, and results in the acquisition of new skills. It is concerned with the development and improvement of previously existing methods through the use of appropriate skills.
- Imagination creativity: Is also known as the imaginary and the rare. It encompasses what it takes to develop new ideas and assumptions, where the highest levels of creativity and achievement facilitate the emergence of a new theory. (Abdelhamid, Shaker. (1987). Creativity process in painting art. Volume 109. Kuwait: National Council of Culture, Arts, Fine Arts.)

The concept of thinking

The concept of thinking is the realisation and identification of the problem of accessibility as a first step to a solution.

Types of thinking

1. Critical thinking: This type is defined as accurate examination to a work or an idea that aims to development.
2. Creative thinking: The ability to create ideas characterised by originality, flexibility and fluency that are applied to some or all of the following points:
   - To develop previously unidentified facts and data
   - Finding solutions to difficult problems that cannot be solved instantly
3. Innovative thinking: Is an authentic thinking that produces ideas, works, and solutions that was never previously thought about with considering the age, the time and the environment.

The concept of creative thinking

According to Guilford, back in 1959*, thinking in an open format was characterised by the diversity of the produced answers that do not specify given information.

*(Al-Titi, M. (2001). *Development of thinking capacities and creativity*. Amman: Dar Al-Masirah for Publishing, Distribution and Printing).

Creative thinking skills

Creative thinking skills encompass originality, flexibility, fluency, and the ability to think abstractly.

Creative thinking from the perspective of the gestalt theory the whole and the parts

The gestalt school of psychology, which began in Germany in around 1912, investigated how we see and organise visual information into a meaningful whole. The conviction developed was that the whole is more than the sum of its parts. This whole cannot be perceived by a simple addition of isolated parts. Each part is influenced by those around it. This theory consists of:

Similarity—Proximity—Continuation—Closure.

Gestalt principles in the field of graphic design

A designer works not simply with lines on paper, but with perceptual structure. By learning the gestalt perceptual principles, one can take advantage of the way objects, the eye, and graphic creation interweave.

Similarity

When we see things that are similar, we naturally group them. Grouping by similarity occurs when we see similar shapes, sizes, colours, spatial locations (proximity), angles, or values. All things are similar in some respects and different in others. In a group of similar shapes and angles, we notice a dissimilar shape or angle. In the Figure 1 the grey square is drawn to our attention because it is different from the squares surrounding it. The three letter 'i's in 'similarity' are shown to be similar by being treated in a similar fashion to each other but differently from the other letter forms.

Grouping by similarity is true for realistic subject matter as well as nonfigurative design forms. The symbol and logotype created for Alcoa by Saul Bass (1920–1966), a renowned American designer, relies on similarity of shape. Count the triangles in Figure 2.

Proximity

Grouping by similarity in a spatial location is called proximity, or nearness. The closer two visual elements are, the more likely they will be seen as a group. In Figure 3, the four squares on top seem to form a group whereas the eight squares on the bottom appear to belong to a different group. Figure 4 uses a close and careful placement of all the elements to create a

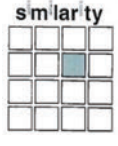


Figure 1

Figure 2*

*(*Arntson, A.E. (2012). Graphic design basics. Wadsworth Cengage learning.*)

Figure 1. The use of similarity also draws attention to differences.

Figure 2. Saul Bass. Trademark for Alcoa. Courtesy, Aluminum company of America.

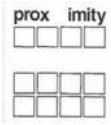


Figure 3* Figure 4*

*(Arntson, A.E. (2012). Graphic design basics. Wadsworth Cengage learning.)

Figure 3. **(left)** Proximity grouping is grouping by similarity in spatial location.

Figure 4. **(right) A3 Design** created this logo for Valley Winery. Similarity, continuation, and reversible figure/ground all unite this strong design. Courtesy of A3-Design.

Figure 5* Figure 6*

*(Arntson, A.E. (2012). Graphic design basics. Wadsworth Cengage learning.)

Figure 5. **(left)** Nationally renowned designer and educator Michael Vanderbyl created this logo for a wine distributor in Toronto. It incorporates several gestalt principles.

Figure 6. **(right)** Stefan Kantscheff, Bulgarian designer, created this beautiful example of rhythm and repetition in symbol design. Courtesy of the artist.

winery logo. Similarity is important, but so is the close proximity and careful placement of the elements, as shown in Figures 5 and 6. These figures place shapes in close proximity to each other, they never touch but form a dynamic whole through proximity and the use of more gestalt unit-forming principles as listed next. Proximity of lines or edges makes it easier for the eye to group them to form a figure. Having finished this chapter, come back to these marks and analyse the combination of unit-forming principles at work.

Continuation

The viewer's eye will follow along a line or curve. Continuation occurs when the eye is carried smoothly into a line or curve that links adjoining objects. The diagram in Figure 7 shows how the eye follows the interruption of the black outline, seeing a continued, implied shape (in this case an X). This principle is used extensively in layout design to unite various elements, often by placing them along invisible grid lines.

Shapes that are not interrupted but form a harmonious relationship with adjoining shapes please the eye. The symbol of the U.S. energy extension service, as shown in Figure 8, uses continuation to emphasise the moving, dynamic nature of energy. In this example, the ends of the 'e' line up with the ends of the arrowhead, forming a continued line that harmoniously unites the shapes. The Family Circle logo by Herb Lubalin and Alan Peckolick, as shown in Figure 9, creates continuation by lining up the verticals of the two 'i' letterforms and also lining up the 'l' and 'r' forms. The eye draws a line down these vertical shapes that makes a new whole out of two different words. American graphic designer and photographer, Herb Lubalin (1918–1981), was the editorial design director for several distinguished publications. His work is shown several times throughout this text.

Closure

Familiar shapes are more readily seen as complete and as incomplete. When the eye completes, or rather closes over, a line or curve in order to form a familiar shape, closure occurs. The diagram in Figure 10 shows white circles appearing as the eye and brain close the open

Figure 7* Figure 8 Figure 9

*(Arntson, A.E. (2012). Graphic design basics. Wadsworth Cengage learning.)

Figure 7. **(left)** Continuation occurs when the eye is carried smoothly along a suggested line or curve.

Figure 8. **(middle) George Jadowski**, designer, **Danny C. Jones**, art director. Symbol for the U.S. Energy Extension Service. This symbol illustrates energy with its use of continuation.

Figure 9. **(right) Herb Lubalin** (art director) and **Alan Peckolick** (designer). Family Circle. 1967. This magazine logo makes quiet but elegant use of placement and continuation. Courtesy of the Herb Lubalin study Center of Design and Typography at the Cooper Union.

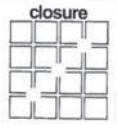


Figure 10* Figure 11* Figure 12* Figure 13* Figure 14*

*(Arntson, A.E. (2012). Graphic design basics. Wadsworth Cengage learning.)

Figure 10. The eye and brain close the white areas into circles. This demonstrates a highly active partnership between the eye, the brain and the graphic image that is at the heart of visual gestalt.

Figure 11. **Pat Hughes** and **Steve Quinn**. This elegantly constructed symbol for 1+1 Design uses a rich combination of similarity, reversible figure/ground, and closure.

Figure 12. **Stefan Kantscheff**. symbol for the Staatliches Operettentheater in Sofia, Bulgaria.

Figure 13. **Herb Lubalin**. 1965. This creation by an important 20th-century designer relies on an anthropomorphic identification with the shape of the letterforms to bring closure. Courtesy of the Herb Lubalin Study Center of Design and Typography at the Copper Union.

Figure 14. The wide ranging Memphis Design Firm **Tactical Magic**, created this design for The Eyewear Gallery. Samples of this design are shown on the accompanying web site. Applied to billboard, web and signage applications.

areas into a familiar circular shape. Figure 11 is a symbol created by the 1 plus 1 design form. Do you see the white plus sign created by the figure/ground relationship? This is a visual closure as our eyes finish the form. Part of the closure in this example includes a sudden conceptual connection and understanding of the name of the form. This sort of connection is especially useful in trademark design. Closure is sometimes accompanied by a reaction filled with realisation and awe on the observer's part. An elegant editorial statement is made in Figure 12 in this opera symbol when the link between a musical note and a heart is recognised.

Figure 13, by Herb Lubalin, calls for active conceptual participation by the viewer to achieve an intellectual closure with the O shape and a womb. The playful shape in Figure 14, for an eyewear company on closer inspection forms spectacles.

Creative thinking from the perspective of the theory of Guilford

Guilford's perception theory about the phenomenon of creativity through his theory of mental training, known as the structure of intellect, was where he selected the three dimensions of mental activity for a person, known as operations, content and product. *(Alsultani, A.M. (1984). The relationship of creative abilities to some of the personal characteristics of middle school students. PHD. Bagdad University.)*

Guilford division of the three dimensions into different mental processes

1-Cognition: is defined as an individual who is an expert in his/her own field. 2-Memory: is intended to keep and retrieve a person's experiences when needed. 3-Evaluation: is the issuing of decisions through the previous experiences of the person. 4-Production: is intended to give a solution to the problem faced by a person, and is divided into two types known as convergent production and divergent production.

Convergent production includes the production of incorrect or specific information in advance and specifically agreed upon. Divergent production includes the production of a variety of information without prior agreement and is associated with right and wrong.

Creative thinking strategies

This paper presents 2 types of strategies that can be employed in the teaching and learning of creative thinking, brainstorming strategy, problem solving strategy.

The brainstorming strategy

Alex Osborn, a journalist back in the 1950s, has contributed to the development of several creative thinking strategies. The brainstorming strategy is one of the most powerful strategies in the development of creative thinking. The brainstorming strategy aspired to break the usual thinking of the individual and to contribute to the production of a list of diverse ideas. The main idea for this strategy depends on the separation of the production of ideas from the evaluation of ideas. The reason for this separation is to prevent mental control over the flow of ideas, which prevents a lot of ideas from escaping, especially considering that some of these ideas may seem unacceptable.

The concept of the brainstorming strategy

It is an individual yet collective thinking process that produces the largest amount of ideas and solutions to a problem.

Levels of brainstorming strategy

Individual brainstorming is a strategy used by graphic designers in different forms such as dual brainstorming, small group brainstorming and large group brainstorming.

The strategy of solving problems

Strategies of problem solving include intended operations performed by the individual using the information and knowledge already learned and taught and skills acquired in overcoming new and untraditional situations. The designer is then allowed to control, access, and implement a solution.

Steps to resolve a problem

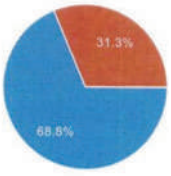
1. Sensing the problem: This step can be summarised as identifying an obstacle to achieve a specified target. 2. Identification of the problem: Can be summarised as defining and accurately describing an issue, allowing the designer to define the outlines of the problem. 3. Analysis of the problem: Realising the basic elements of the problem and excluding all that is irrelevant. 4. Collection of the relevant data: Determining the best available sources from which to gather information and data in relation to the problem which could help in reaching an effective solution. 5. Proposing of solutions: Represents the person's ability to master and determine a number of ideas proposed to solve a problem. 6. Studying the proposed solutions as a critical study: choose the best one between the proposed ideas (the solutions). However, preference is usually given to the idea with the most positive impact and least amount of negatives according to the data collected.

Measuring research tools

Question No. 1

1. Do you know that there are strategies of thinking that the graphic designer must follow at the start of his/her design? Yes, I know. No, I don't know. If your answer is no for the previous question, please answer the next question.

Answer for Q.1



Yes I know	22	68.8%
No I don't know	10	31.3%

Question No. 2

2. If you were aware of strategies of thinking for the graphic designer that can be followed to find a solution for a design, would you follow one of them? Yes, I would. No, I would not.

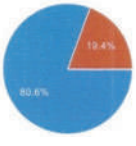
Answer for Q.2

Yes, follow	10	100%
No, Don't follow	0	0%

Question No. 3

3. Do you follow a strategy of thinking when you start your design? For example, when you design a logo for a company, do you follow a strategy of thinking for the solution design? Yes. No.
If your answer was yes for the previous question, please answer the next question.

Answer for Q.3



Yes	25	80.6%
No	6	19.4%

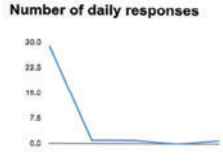
Question No. 4

4. Select the strategy that you followed (strategy of brainstorming—strategy of solving problems—other (.....)

Answer for Q.4

32 responses (in Google) the sample senior students in the Graphic Design department in Princess Nora Bint Abdurrahman University.

strategy of brainstorming(استراتيجية العصف الذهني)	22	84.6%
strategy of solving problems(استراتيجية حل المشكلات)	9	34.6%
Other	1	3.8%



5 RESULTS OF MEASURING RESEARCH TOOLS

1. Some graphic designers did not know that there are strategies of creative thinking that the graphic designer must follow when initiating a design.
2. All graphic designers lacked knowledge with regards to the range of strategies of creative thinking but agreed with regards to the need to follow one to find a solution for a design.
3. Most graphic designers that follow a strategy of creative thinking prefer the strategy of brainstorming over the strategy of solving problems, while only a few frequently used other strategies.

6 RESULTS OF THE PRESENTED RESEARCH

1. That the graphic designer has to be aware of all strategies of creative thinking and use at least one of them when designing.
2. The research presents, as well, a conclusion that all innovative ideas in the field of graphic design, with a positive impact on society, rely on the use of creative thinking and its strategies.

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History and arts


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A process of urban regeneration from below. The case of Taranto (Italy)

Ina Macaione, Antonio Ippolito, Anello Enrico & Roberto La Gioia
Nature_city lab, DiCEM, University of Basilicata, Matera, Italy
Are_lab, Massafra, Italy

ABSTRACT: This research focuses on the crisis of Taranto, and starts by analysing the current state of shock caused by the presence of the steel factory, ILVA. The factory has caused disastrous effects on environmental, social, economic and urban conditions. To deal with this problem local citizens, joined by voluntary associations, initiated processes of urban regeneration from the bottom, reactivating small portions of urban land (abandoned structures, disused areas, etc.). The citizens of Taranto proved themselves to be able to live in life-threatening conditions, awkward conditions they would have never thought they would have to cope with. The purpose of the activities carried out by the associations was to educate citizens to become smart and sustainable.

Keywords: Taranto, ILVA, urban regeneration, sustainability

1 INTRODUCTION

To regenerate a city is to satisfy urban, socio-economic and environmental needs expressed by the population. Citizens, through actions and reversible processes, are able to influence the development of the city. In this perspective, besides having an active role in shaping the surrounding environment (Bandura, 1999). The city is not, in other words, merely a physical mechanism and an artificial construction. It is involved in the vital processes of the people who compose it; is a product of nature, and particularly of human nature (Park et al., 1925).

It is now known that the urban or environmental landscape is a system where the processes and elements that compose it are in continuous interaction between themselves, and Man's ability is, in fact, to make changes in order to make it liveable. Consequently, man can be considered an important agent: a modifier of the landscape.

Many of the realised district, especially those of the industrial city, appear to condense serious problems relating to social marginalisation and degradation of urban planning and construction. Similar conditions assign, these days, the 'public city' to the role of a fertile laboratory for the testing of integrated social and spatial redevelopment.

Thus the city becomes a public design laboratory to gather knowledge, ideas, and proposals, in order to contribute creating urban regeneration actions from the bottom aimed at ensuring the improvement in living conditions of residents in the neighbourhoods affected by the interventions.

Therefore, cities should be understood as a process of modelling and development that determine the physical design of the territory. In fact, actions of different stakeholders are constantly conditioned by the processes of development and change in environmental, urban and socio-economic settings. If these balances can't persist, they face systemic crises 'that, by analogy, we could assimilate to the crisis of a society to the persistence of a period of social change, or of settling between new forces or new stakeholders' (Parsons, 1971).

The city must therefore be considered to be a set of interactions between citizens, aiming at a sustainable environment through each concrete action to change the entire system. 'Places, temporalities and processes of change are the product of social interactions; they are the result of different processes, and the contextual character of change found a plurality of paths and diverse narratives constitutively heterogeneous; and they are socially constructed, an achievement never definitively accomplished, in a tangle of stories simultaneously becoming' (Cremaschi, 2008).

Urban regeneration is therefore understood as an organic process, as the paradigm of the city-nature, rich in projects aimed at creating urban environments that are respectful of diversity, preserving the built cultural and historical heritage and transferring it to future generations.

In this context is important the definition of resilience. It is defined as 'the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to reorganise, change, and learn in response to a threat' (Cutter et al., 2008).

In ecology, the capacity of an ecosystem to respond to the anomalies, also to regain a steady state after a disturbance.

'Where among the mindful traces of past stories appears the resilience. In its elastic fluidity one discovers the bio-diverse population, in the crisis, in the regeneration of the city. So in the various times of living and in spacious types, the great enters the small: humanity, landscape, nature and the world, penetrate as icons, well within the matter. In living the limit, the 'mind' of architecture expands. In the heterotopia of the Nature-City the almost nothing nature is more where you expect it (Sichenze, 2014)'. A sustainable city is also a resilient city. A resilient city is an urban system that not only adapts to climate change (especially global warming) which, in recent decades, has made cities increasingly vulnerable with ever more dramatic consequences and rocketing costs. A resilient city is a city that changes itself, building new social, economic and environmental responses that enable it to withstand the stresses placed by the environment and history.

This is the case of Taranto, a city in which is present a 'strange form' of living, linked to the presence of a steel factory. On the one hand we find a purely industrial reality in which many citizens are also workers and on the other hand the citizens want the closure of the factory.

In this paper we are less interested in assessing 'community' participation within urban regeneration policies in Taranto; nor do we wish to deconstruct the rhetoric of participation that has recently become so overwhelming (Jones, 2003).

This study allows us to know and understand how citizens are responding to industrial presence which marks the transition from a town devoted to agriculture and fishing to a city which relies on the industrial sector. This allows us to have knowledge of the factors that caused the socio-economic and urban impact and how citizens relate with them. So, the aim of this paper is to widen the debate about urban regeneration with reference to the initiatives promoted by local, self-organised civic networks (Morandi & Rabbiosi, 2012). We focus on urban regeneration 'from the bottom-up' (Morandi, 2008) as a tool for empirical research about urban resilience and the restructuring of urban governance. 'In so doing we also connect, and test, a new concern in urban policies as well as urban studies which consists of matching the effects of the economic recession with a renewed interest in what is often called the 'hidden potential' of local areas within cities (Unsworth et al., 2011)'.

In this paper we are interested in better understanding «the mobilisation of actors who do not have direct policy commitments of their own» as process of «productive outcomes on the organisation of space. It is argued that these actors not only make claims in the public sphere, but also actively contribute to the dynamics of space production that trigger the processes of spatial change at the urban level» (Rossi, 2004).

This paper tries to understand the role of social associations and bottom-up initiatives. In particular, the study conducted by Are_lab and Nature-City Lab refers to locally based initiatives that consider the territory not only as a frame, but also as a resource and an object of intervention. Adopting a multi-level approach, the role of bottom-up experiences in urban

regeneration process and their connection with broader dynamics will then be discussed through the analysis of the specific case-study of Taranto.

1.1 *'Bottom-up' processes*

The last few decades have seen renewed attention to spatial issues, both in public debate and within social sciences. A revived awareness that society does not take shape in an abstract space but in specific times and places has risen and cities, being one of the particular settings where flows become concrete, have come back to the centre of the analysis. In this sense social issues become urban issues and broader changes are reflected in the transformations of cities.

Bottom-up urban regeneration is a term that identifies a variety of experiences which may differ in inspirational principles from so-called 'integrated' public policies to business-led economic development strategies or popular grassroots and neighbourhood-based efforts to capture the benefits of urban restructuring for local residents (Pacione, 2005). In any case, urban regeneration from the bottom-up presupposes a certain degree of cooperation, if not of participation, among the actors involved in the policy process (Healey, 1997). The generally restricted meaning of participation in urban policy, as well as the ideology and implications behind it, was the subject of enormous debate at the beginning of the 2000s (Raco, 2000).

Bottom-up initiatives and associations are therefore gaining a new centrality in the urban regeneration process. However, this new role may also involve some critical questions and sensitive issues. Firstly, bottom-up initiatives, grass-roots mobilisations and civil society associations express specific needs, desires, or visions of what their city or their neighbourhood should be. What often happens is that, as time goes by, these actors find themselves torn between their original vision, the needs and requests that they express and the urgency of attracting public or private funds for their actions. In order to do so, which is especially significant in a period of scarce resources, they need to be able to 'intercept larger trends and build their own image to fit within the strategic vision of the city' (Bolzoni, 2012).

Secondly, the presence of different bottom-up initiatives and movements asks for the consideration of the question of legitimacy and representativeness. This pluralism remarks the high level of diversity characterising urban contexts, but if 'the freedom to make and remake our cities and ourselves is [...] one of the most precious yet most neglected of our human right' (Harvey, 2008).

Urban regeneration has been associated with various approaches throughout history, sometimes involving massive physical reconstruction of neighbourhoods with many negative side-effects. A common denominator of such traditional urban regeneration approaches is that they have been centrally run. On the contrary, bottom-up regeneration stands for practices that also contribute to better living conditions in cities, in particular in relation to open public space, but are bottom-up, initiated by the citizens and local entrepreneurs, who use the public space daily, and are implemented through events and interventions in the public space.

These projects can also be a bottom-up process (initiated by cultural non-profit organisations, artists, and other cultural operators) that can draw local government's attention, and attract other actors from the community to the project (e.g. universities, schools, community members), and push for policy measures that would accommodate their interests. The bottom-up, culture-led urban regeneration process has great potential to contribute both to the development of the cultural field and to urban regeneration, and challenges the traditional way of policy-making and implementation, in which the local government has the central role. At the same time, its bottom-up character makes it more vulnerable and less sustainable in the long run (Stoica, 2010).

The bottom-up approach is an alternative to the top-down strategies of inner-city regeneration and encompasses any individual or collective revitalisation actions undertaken by members of local communities in a given neighbourhood. Its key distinguishing feature is the genuine engagement of inner-city residents which follows on from willingness to improve

their quality of life. Even if activities directed towards this goal are assisted by public authorities, it is the initial grassroots initiative which makes all the difference.

According to P. Clay (1979), the author of the term, 'incumbent upgrading' stands in opposition to gentrification as it describes spatial improvements in degraded blue-collar and working-class inner-city neighbourhoods which are initiated by the sitting residents and not newcomers. Hence, it is claimed that the influx of a higher-status population may not need to be the necessary key to positive changes in run-down urban areas. Clay's way of reasoning was subsequently resumed by several authors (Downs, 1981; Baldassare, 1984; Varady, 1986) who enriched the theory of incumbent upgrading with further clarifications.

1.2 *The case study*

The role of social participation (citizens and all social actors in the local community) in the achievement of community well-being is one of the main aspects through which you can activate regeneration processes and the regeneration of places and spaces. The present and active involvement of all parties in the community—citizens, families, institutions and volunteers—can respond to the situation of great economic uncertainty. The urban reality becomes the place where actors seek to answer emergencies. This through shares and reversible processes that can influence the development of the city.

The research approach will be followed by an analysis on Taranto and further, two bottom-up initiatives will be discussed. Even if they are quite different, they all share a grassroots origin and a relevant, and sometimes unexpected, role in the transformation of the city. This paper is based on the current PhD research project conducted by Antonio Ippolito, that in collaboration with Nature-City Lab and Are_lab, has adopted an approach with a combined use of participant and naturalistic observation, in-depth interviews and documentary analysis. The fieldwork started in October 2014 and is still in progress. As part of the research we moved into the city, taking part in events, to see every day how cultural and social associations worked.

Taranto is a city with 200,000 inhabitants and is the sixth largest city, by population, of all of southern Italy. It has a strategic geographical position, between the *Mar Grande* (Great Sea) and the *Mar Piccolo* (Small Sea) and the *Mar Mediterraneo*. In the early 1960s it was decided to build a steel plant. Its choice depended by logistical reasons and by economic crisis of Taranto and on the 9th July 1960 the first stone of the factory was laid. The first products of Italsider were sent to the Soviet Union in exchange for oil and this economic exchange has contributed to an enlargement of the establishment and the operation of other systems. The production capacity in that period was about two million tons per year of crude steel. Also, in 1967 the Eni refinery was built, located in areas adjacent to the factory on an area of 270 hectares. In the early 1970s the production capacity of the steel plant reached 4.5 million tons per year and it was decided to expand it to make it up to 10.5 million tons per year.

This led to an expansion of the plant that changed the urban plan of the city. In the mid-1980s the European steel crisis hit Taranto which was forced to make many redundancies. In 1987 the company was changed in Ilva. In the early 1990s, the group was still in crisis, therefore, the European Union mandated that the factory had to be purchased by a private investor and in 1994 the sale process started. In 1995 the Riva family bought Ilva for about 1,750 million euro. In subsequent years, the Riva family started an internal restructuring process with a reduction of work. Following investigations by the magistrate on the high pollution in Genoa, all steel production was transferred to Taranto which become the only steel producer of the company, and also the biggest steel factory in Europe. In 2006 production capacity reached an historical record of 14 million tons per year, while in 2007 the group made a profit of 900 million euro. The first investigations by the magistrate of Taranto has shown that the company generated profits at the expense of safety, worker health and environmental protection.

In 2005 the first conviction was issued for pollution against executives of Ilva and Emilio Riva. In 2009, by order of the administration of the Puglia Region, nearly 2,000 head of cattle were killed because of dioxin-contamination and one year later an order was issued

prohibiting grazing within a radius of 20 kilometres from the steel plant. In July of 2012 the investigation *Ambiente Svenduto* lead to the seizure of the hot area. This lead to several arrests, including that of the owner of Ilva, Emilio Riva, his son and former CEO, Fabio Riva, the management team including the Head of External Relations, Jerome Archinà, and politicians. In 2014 the conviction for manslaughter was made against 27 defendants, many of them leaders of Ilva, including Fabio Riva, for the deaths among the workers caused by exposure to asbestos. But the first condemnation against Riva came in 2005 for air pollution and dust emissions.

In 2012 the Judge Simone Orazio, in his judgment of 23 May 2014, declared 'Ilva's workers died because of asbestos present in the factory and they could have been saved if only the company had acted promptly'. He also declared that if there had been a medical appropriate, they would have 'diagnosed the disease for the workers'. According to the magistrate, 'The policy of the factory had always been set to achieve maximum profit, even at the cost of compromising the health of the workers'. But to save the health of the employees, the leaders of the plant could at least provide adequate equipment but, instead, testimony in court made it clear that the workers were provided only 'disposable' respiratory masks which experts have called inadequate.

1.3 *Two bottom-up initiatives*

1.3.1 *'Ammazza che piazza' project*

The analysed project is located on the eastern outskirts of Taranto, an area characterised by a low presence of green. The *Pinetina Antonio De Curtis* is set among purely residential lots. The 'hidden area' by neighbouring buildings is not readily identifiable and is reached from the main road. An area able to contain a greater number of users. The area had been neglected for years and was always seen as a place of little relevance, a remnant of old housing development plans. In the early 2000s, the administration approved a reorganisation plan for the site, allocating the area as a public green space, providing it with a lighting system and making a series of paths and parking areas. The reorganisation of the actions still cannot be possible and hasn't generated attractive effects for new users. In the last months of 2012 around the area was born a spontaneous movement of citizens that comes together under the name '*Ammazza che piazza*'. The goals of this unofficial organisation were to revitalise the area and regain possession of the abandoned spaces of the city, returning them to citizen ownership. The movement '*Ammazza che piazza*', made up of volunteers, is not organised by any form of association, and it is self-funded. The project to reorganise the '*Pinetina Antonio De Curtis*', proposed by the committee, was a first step in this direction, and became the pilot project of the movement. In fact, the objectives of '*Ammazza che piazza*' are to recover all of the degraded and abandoned areas of the city, involving a great number of people. The meetings held by the committee concerning the activities are public and often carried out in open spaces in order to increase engagement. For the purposes of active participation and sharing of information about these initiatives, they have organised open dissemination of activities to all citizens, so as to showcase progress and to be able to get advice and ideas to contribute to the continuous improvement of the work. The measures put in place by the committee are directed towards the reorganisation of the areas through the enhancement of spontaneous uses and the inclusion of a plurality of functions and activities. The arrangement of the green space with street furniture, created especially with lightweight materials, is also used to enhance and 'formalise the spontaneous paths that have gradually been created over time. The functional mix is a key element: an area for dogs, a children's play area, spaces for sports, and the offer of recreational activities that are an attempt to attract people from outside the neighbourhood. The diverse functions and uses promotes enjoyment of the area for different kinds of users, belonging to different age groups and that frequent the area at different times of day. These areas become in this way liveable and secure places. The majority of materials used are wood, pallets, tyres, and metal from dried paint tins and recycled plates. With these materials the group has made benches, tables, rubbish bins and more. In this case the only actor involved in the process of redevelopment and revitalisation of these areas is '*Ammazza*

che piazza'. The reorganisation of the areas is free of the implications associated with the acquisition of the land because it belongs to the public domain. The project was entirely managed and implemented by the movement while the government has limited itself to let the members speak in the normal management of business.

1.3.2 *'A Tamburi battenti' project*

Another bottom-up action, it was achieved through the interception of the funds made available by *Fondazione con il Sud* under the name *Ambiente e Sviluppo*. The winning project was *A tamburi battenti* and it was fielded by associations, ecclesiastical institutions and educational institutions operating in the area (Airone onlus; Associazione Marco Motolese; Associazione Solirunners; Associazione culturale teatrale Sant'Antonio; Confraternita Maria SS.ma della Scala; Learning Cities; nessuno escluso onlus; onlus caritas christi; XI Circolo 'G.B. Vico'). The goal is to provide the restructuring of the *Teatro San Francesco De Geronimo*, which belongs to the church, to give rise to a common 'house' collectively designed through innovative and sustainable practices, enabling the testing of functional and decorative solutions through eco-design and the reuse of waste materials from local companies. The work will involve disadvantaged people with manual skills and expertise related to carpentry and upholstery.

Then there will be a job training program for citizens to deepen the acquisition of skills related to the redesign and reuse of furniture and decorative elements. '*Tamburi battenti*' will be a lasting network for the establishment of a multidisciplinary group bringing together architects, curators, artists, designers, theatre companies, choreographers, and ecologists, who can interact to start actions able to transform the district Tamburi in Taranto, starting with artistic and cultural practices. Through the programming of 'residences' of artists, production of new works, organisation of workshops and seminars, archiving and dissemination of works with publications and audio-visual documentation, the collective will work to strengthen the relationship between the various forms of art and life of the community, helping to spread the participatory and collaborative approach to creative processes and sustainable practices. The goal is to create an experimental process which will define a kind of 'hub'. A shared and open hub used to rethink the relationship between public space, citizenship and artistic and cultural communities.

The network will be structured through actions that will take place in relation to the presence of the theatre. The actions will be coordinated by the multidisciplinary team. In this way, the project wants to implement the social relations between city and province, public and private sector, that are linked to consolidated cultural products. In relation to networking, it is expected the activation of participatory practices (Social and participatory practices) and procedural (context-based) to reflect on the most urgent issues related to the relationship between the residents and the environment, to identify solutions and methods interaction in relation to the 'theatre' environment.

The theatre will be able to count on a series of 'satellite' spaces belonging to the project leader, which will form functional areas to implement the measures. Among them, the John Paul II multipurpose centre with congress and conference facilities; the Emporio space on a nearby street; laboratories in the *Exhibition Nasisi*. The theatre will be a social incubator in which to bring together an exchange of services and expertise useful to the territory and it can act as a driving force for employment development interventions in the neighbourhood, also working through the active involvement of the schools. It will include the production of 'Made in Tamburi' with the creation of clothing, accessories and curtains, which will involve ten women of the neighbourhood, selected according to the degree of need and personal inclinations, which will subsequently be integrated in a cooperative work. The musical activities developed within the theatre provides for the establishment of a percussion orchestra called '*Tamburi di Taranto*' that focuses on its composition and originality using handmade instruments.

These actions are aimed at encouraging the promotion of the project at a national and international level. A permanent service orientation to work and start-up development will be activated in the urban area, a place dedicated to disadvantaged people. The crowdfunding

work will support the deployment of strategies for the sustainability of individual projects, workshops, performances, exhibitions.

2 CONCLUSIONS

Identity and community are both important to build resiliency. This is crucial to enhance the human and social capital to create a resilient community.

This paper has tried to show the role that bottom-up initiatives and social associations may have in a process of urban change and regeneration. They all identify particular needs in shaping the urban space. This work can help to find a new way to conceive a new idea of sustainable development.

Before these actions, strategies for mending physical urban areas were missing in town, as were paths towards participative forms of urban regeneration framed by at least a few criteria of social, environmental, economic, and institutional sustainability. Indeed, «recognis(ing) untapped areas of potential by challenging and going beyond the business-as-usual urban policy orthodoxy, and how to enable communities to realise this potential to build their own resilience strategies and improve well-being» (Unsworth et al., 2011) is not only of interest to self-organised civic networks but also, and more often, to institutional actors, which might be very sincere in their desire to take the path of listening to bottom-up proposals, promoting 'active citizenship' and legitimate forms of urban regeneration interventions coming from the bottom-up. The effective presence of many different stakeholders proposing urban regeneration projects 'from the bottom-up' represent only a form of urban resilience.

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