

Fatimid Cairo: a Sustainable Neighborhood from Medieval Times

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Abstract: *Islamic cities (especially Fatimid Cairo) have emerged as a unique urban model embodies distinctive sustainable characteristics reflecting Islamic culture values. This model remained successful and evolving steadily for nearly ten centuries since the end of the tenth century (969A.D) depending on the strength of its aspects. The community itself lived the socio-economical and environmental concept of sustainability and applied it on its urban structure which revealed its social cohesion, economical integration and environmental compatibility in the region. This paper aims to analyze Fatimid Cairo urban structure to reveal its sustainability characteristics, which made it an outstanding universal value (according to the criteria of inscription). This study relies on an historical, analytical and deduction methodology of urban structure; to demonstrate interrelationships between social, economical and environmental sustainability characteristics and the built environment. Such characteristics which formed urbanisation of Fatimid Cairo and gives it its quality of life, could form a strong base for building a futuristic sustainable urban model in Egypt.*

Keywords: *Sustainability characteristics – Fatimid Cairo – Islamic Urban Form – Quality of Life – Self-Sustainability.*

What sustainability means for Fatimid Cairo

The concept of sustainability is hard to generalize. Each region or community has its sustainability goals that vary according to society cultural characteristics. What we would to expose by sustainability is to focus on neighborhood assets and express values that have been formally adopted by community residents (1).

Evolution and Configuration of Fatimid Cairo (Historical Approach):

Usefulness of the historical approach is, outlining the framework in which the Fatimid Cairo evolved across time and demonstrates its urban configuration changes in place. The Islamic Cairo grew up in the form of several nucleuses out of each other from south to north. Firstly, was Al-Fustat in 641AD, secondly Al-Askar in 751AD,

Thereafter Al-Kataea in 868AD (2). By 969 AD the Fatimid Caliph Al-Muizz enters Egypt by

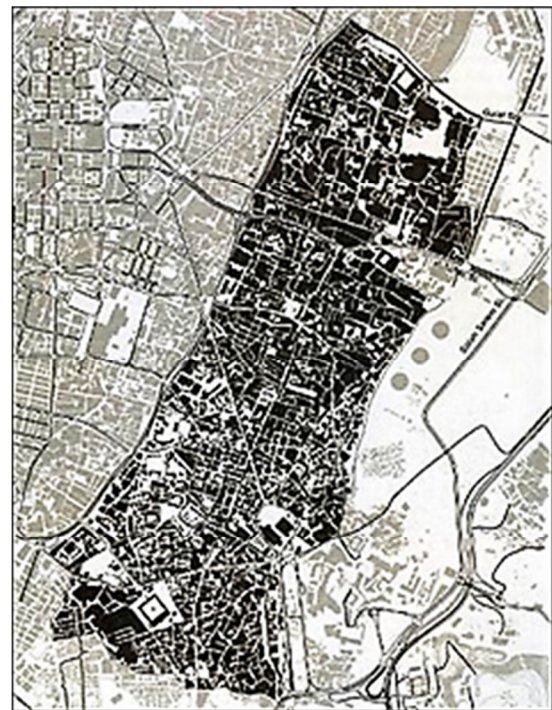


Fig. (1) Fatimid Cairo borders

Jawhar, the general leading of Fatimid forces. He selected a site for the new city which was completed in 971 AD as a princely city for the Fatimid Caliph to be his imperial capital. It was bounded between the Egyptian Gulf in the west and Al-Mokattam plateau edge in the east. The city had originally an area of 340 acres, 60% of which were residential quarters, 30% were royal palaces and their gardens (3).

Fatimid Cairo started as a princely walled city, and transformed into a public city in the Ayubid period. The most rapid transformation took place during the reign of the Bahri Mamluks. Most construction of this period occurred along Al-Qasabah, the main axis of Fatimid Cairo running north to south from Bab Al-Futuh to Bab Zuwayla (4).

Environmental compatibility of Fatimid Cairo:

Environmental compatibility means, dealing properly with the environmental determinants and overcoming constraints. At the urban form level, for achieving the compatibility there are some important issues to address, such as: mixed uses, movement system integration, residential uses and its relation with industry, open spaces and commercial areas. So it is crucial to analyze these urban issues of Fatimid Cairo urban configuration, and show to what extent they are sustainable through their response to the environmental conditions. To a great extent, a good part of the Islamic city is shaped by decisions that aimed to mitigate the climate (5).



Fig. (2) Tortuous alleys of Fatimid Cairo

- **Mixed Uses:** The most distinguishing feature of Fatimid Cairo is the obvious presence of residential neighborhoods surrounding the urban activities which considered as an important principle of urban sustainability. These mixed uses that contain palaces, mosques, hammams, wekalas, shops, and a number of four to five story houses made it vibrant and livable until now (3). The juxtaposition of these activities reflected its interdependence, the integration of functional relationships and the diversity in size and spatial location. This mixed use helped on overcoming of the environmental constraints of the desertic environment.

- **Residential uses:** Regarding the areas' allocation, residential areas of Fatimid Cairo extend on both sides of Al-Qasbah composing homogeneous social groups of the same profession, even though they varied in income levels, where the city did not know the segregation of classes (interdependence). Residential plots reflected a great variety to fit all segments of society (diversity). The urban fabric of Fatimid Cairo is characterized by dense configuration of contiguous enclosures with inward oriented houses helped to decrease the sun-exposed surfaces, and consequently reduce internal temperature.

The concept of causing harm and damage was decisive in determining the location of industries and separating them from residential areas within the city. It didn't authorize the establishment of heavy industries or tanneries except outside the city (6). Jurists considered

extensively the sources of damage such as smoke, odor, sound and vibration. They discuss the sources of damage, their origin, and their necessity to the livelihood of their owners (7).

-Commercial areas: Marketplaces in Fatimid Cairo represent the city spine which extends in a linear axis from north to south, known as Al-Qasabah. These Marketplaces have achieved the environmental sustainability of commercial uses for a long time till now, according to three principles. The first principle, allocating shops with respecting similarity, has achieved the environmental sustainability of Al-Qasabah through its ability to reduce the walking distances through providing diversity of goods and services in a limited place. The second principle, relative frequency of activities to provide needs of certain products, created a functional module for Al-Qasabah, to promote the linear extension and pedestrian movement. The third principle, avoid causing harm and damage, such as smoke or repulsive odors, achieved sustainability by reducing the risk of pollution by smoke and repulsive odors (7).



Fig. (3-4) thoroughfares and secondary street

- Movement System: The Fatimid Cairo extended in a linear form that is always preferred for pedestrian movement. The analysis of urban fabric demonstrates three planning considerations affected the formation of the network, firstly, the commercial markets sites, secondly, grand mosques locations and thirdly, the hierarchy of roads according to movement volume. These considerations led to three types of streets. The main thoroughfares (Al-Qasabah) reserved for commercial and trading activities, grand mosques, public buildings and amenities; they constitute the main arteries of the city ranging between 60 to 70 cubits. Residential uses are distributed on these secondary streets with width ranging from 40 to 20 cubits, they are a public way in which all people have the right of way, they are submissive to Sharia laws and not to be infringed upon, even for building a mosque, and they may be expanded to fulfill the public interest. Thirdly, the cul-de-sac (alley, Zuqaq) is 7 cubits not less than that, which most jurists consider it a private appertaining to its surrounding properties.

This movement system of secondary street and cul-de-sacs (alleys) diverges from Al-Qasabah in appropriate width extend in a dendritic pattern, suitable for man and animals movement and suitable for the climatic conditions (8). The orientation of Al-Qasabah from north to south helped to provide a great amount of shadows and ventilation. The tortuous internal alleys helped to reduce direct exposure to the sun and mitigate the temperature (9).

Open spaces: The urban fabric of a city is composed of three main elements: building blocks, streets and open spaces. These open spaces are classified into public and private. In Islamic cities as well as Fatimid Cairo, the streets and open spaces were intertwining together as a result to environmental and social considerations. While environmental factors helped the Greco-Roman urbanisation to provide open spaces such as (Agora, Forum,

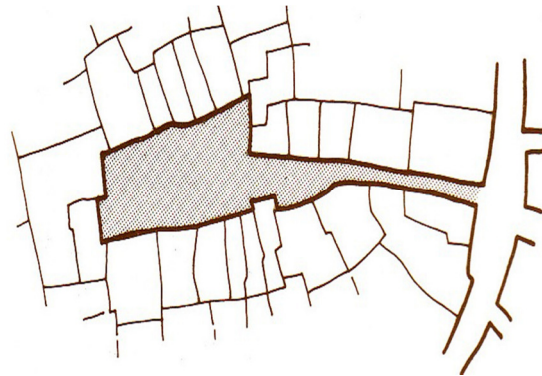


Fig. (5) open spaces diversity

and Plaza), the Fatimid Cairo overcame the environmental constraints by providing the private and semi-private open spaces (Interiority), no matter whether you are in the street or inside the mosque or the home, you are in one aspect always on the inside (5). The Fatimid Cairo type of street life (open space) creates social bonds that contribute to a better quality of life. Courtyards are semi-private, open spaces that are reassuring by their human scale and that lend themselves to interactions between residents (10).

Social cohesion of Fatimid Cairo

Social sustainability considers how individuals, communities and societies live with each other, and societal provisions and expectations for. The interactions between people are the first factor of organization of a city (10). Sustainable communities formed as an open community are equitable, diverse, connected and provide a good quality of life. It includes issues of health equity, education, social equity, livability, social justice, social capital, social responsibility,... in short, and all the different parts that, together, make up a community. One of the major elements of the Islamic social system was the internal organization of the city according to occupational affiliation which gave the community of Fatimid Cairo its social cohesion. There is non-discrimination among the population of Fatimid Cairo on the basis of income, race, social status or religion.

The effect of built environment on the social characteristics

The mosque, alley and house courtyard formed the social relationship inside the configuration of Fatimid Cairo. The Mosque and its surrounding open space represent the largest open area within the urban fabric, as it is located in front of Al-Hakim and Al-Azhar Mosques. These spaces are places for annual worship and community ceremonies. The grand mosque is the weekly meeting place for neighborhood residents, while the mosque of the alley (Al-Harah) is the daily meeting place. So the mosques encourage the social cohesion, strengthen solidarity. A lot of the problems were solving in the mosques by natural leaders and jurists. The alleys are the places of social interactions, either for everyday life or events. The alley (Harah) with its semi-private open space encouraged social life and reinforced safety within the residential areas (privacy). The house courtyard is the main venue for the social life of the family and sometimes contiguous families. The concern for privacy was reflected in the physical form of the city in several ways. Among these are the limits of building heights throughout the city, avoidance (or architectural treatment) of windows on the street, and the

placement of doors within the street (7). Interdependence and Privacy represented basic rules of residential sustainability of Fatimid Cairo.

Public services and social responsibility

The public services (educational, health, religious, social) varied in terms of functions, sizes and distribution within the urban fabric of Fatimid Cairo. The induction of services diversity reveals the desire of both community and rulers to provide the city with various institutions that realize the growth and evolving of community. There are four essential factors contributed in services sustainability of Fatimid Cairo. Firstly, diversity of services and its ability for growth and evolution. Secondly, distribution of services which combines concentration and spreading. Thirdly, spatial and functional development of services has been associated with community lifestyle levels (necessities, needs and Improvements levels). Fourthly, compatibility of control mechanisms (Al-Mohtasseb) led to raise the efficiency of urban management for services.

The system of Hisbah (the supervision of moral behavior within the town) and Al-Mohtasib have an important role in controlling and adjusting the changes in the built environment of Fatimid Cairo to achieve social justice, equality, removing the damage, recognition of rights and encourage the people to achieve the public interests of the city (6). The role of Al-Mohtasib started since the beginning of Islamic city and grew steadily. He was broadly empowered to observe the fairness and honesty of the merchants. He was also responsible for seeing to the punishment of the faulty (3).

Alwaqf (the endowment of property for social services) reflect the role of social responsibility within the Muslim community and its ability to provide services. There were an interest of constructing schools (madrassa, Kutab), Sabil (water source), Tekia (feeding poor) and Pamaristan (hospitals). Urban management in Islamic cities relied largely on endowment foundations voluntarily financed by endower. It performed a significant socio-economic role with regard to the needy. A property donated for the sake of divine reward becomes in legal terms the property of God, and its profit is expended according to the donor's clauses. (11).

There was probably hardly anyone in Islamic cities whose life was not at one stage or another shaped by Al-Waqf system, either in the form of schools or mosques, or in the form of commercial locales, or bathhouses, and other social needs, or in the form of allowances, financial support and provisions (12). Endowment shrunk the gap between the rich and the poor as it insured permanent incomes for the deprived persons and thus strengthened the community cohesion. This social welfare policy tackled the problem of poverty and deprivation. Collected funds were spent for the provision of municipal services (potable water, streets pavement, city-wall) and public utilities (education, health, social welfare, worship) at no charge to citizens. The availability of funds and its autonomy in expenditure, made these foundations the backbone of the municipal management in Islamic cities. Ibn Khaldun described Al-Waqf as the "**science support**" and the reason of progress in Islamic cities (13). At the socio-economic level, Al-Waqf played a crucial role in, distributing wealth, reducing poverty rate and promoting social cohesion.



Economical integration of Fatimid Cairo

The issue of economical sustainability is complex and multi-indicators, but our focus here is upon the most two important features characterized Fatimid Cairo economical integration; economical specialisation and economical control. From these two points branchout a lot of indicators. What we address here is, how the economy is directly related to the built environment.

Economical specialisation

The economy of Fatimid Cairo was and still characterized by diversity wich give it sustainability. Different segments of Al-Qasabah reflected specialisation of production and tradingmarketplaces.The marketplaces were following the qualitative division of goods. They were providing the daily needs of residents beside the commercial and industrial busnissess. While a part of the economy dedicated to everyday needsthere was another part was dedicated to the outside community.Fatimid Cairo remained the center of economical life and international trade until 1798 (14).Diversity and specialization leading cause of sustainability of certain activities till now.

The most significant marketplaces along Al-Qasabah were al-Nahassin(copper market), al-Sagha (jewelry market), al-Ghouriya (spices andperfumes market), al-Sorougiya (oil andvegetable market), al- Daggagin (chicken market),al-Fahamin (coal market), and al-Khayamiya (tent market), al-Selah (weapon market),al-Harrareyin (silk market) (15). Some of these markets were performing services for the residents of the neighborhood, while the others were performing services at the city. Juxtaposition of Industry and Trade places and their integration led to economic efficiency. The diversity and multiplicity of markets in terms of size and type helped the continuity and sustainability of activities.

Management and economic control

The Specialisation of markets made it more professional and have its own management which take its responsibility regarding the profession.Once the Fatimid Cairo began to look at the markets as the source of income, administrative machinery had to be created to supervise the markets' organization and to ensure a steady flow of income. This was to be found in the person of the Al-Muhtasib whose main concern was to supervise the quality of merchandise and to ensure that the process of buying and selling within the market followed prescribed religious principles (7).

What is lacking this model to be applicable now:

This unique form of Fatimid Cairo was originated from the Islamic Culture values and the constraints of desertic environment; it remained in progress to achieve the socio-economical and environmental needs of the population for long periods. Since the beginning of the nineteenth century, the influence of this model declined for many reasons and factors. It is important to introduce car movement variable on the Fatimid Cairo model which depending entirely on thepedestrian network. Contemporary urban laws that forming urbanization of Islamic cities (landuse allocation, land subdivion) do not achieve the social cohesion and environmental compatibility as in Fatimid Cairo.While the world is going to encourage



mixed-uses and compact urban fabric there is a lack of community awareness of the importance of this sustainable form.

Results

- Lessons from the design of urban forms can be found in the islamic city, which were very efficient to protect from hot and dry climate and to use wind to refresh the city at different scales thanks to a compacted urban texture (with the traditional courthouse) which creates a dense but porous and breathing city.
- Urban development of Fatimid Cairo was formed, bearing on the coincidence of knowledges, ideals, power, laws, order, practices, social customs, cultural bearings, and religious views.
- Mixed uses, compacted urban fabric, walkability and open spaces, reveals the originality of Fatimid Cairo urban form and its ability to achieve environmental sustainability.
- Network shape and hierarchy encouraged a heavy movement in some parts (commercial areas) and limit it to minimum in other parts (inside residential alleys), so this shape makes some places liveable and vibrant and others tranquil and safe.
- Compacted urban fabric of Fatimid Cairo reflects the diversity of urban and architectural elements which achieved environmental compatibility, social cohesion and economic integration of the different levels of population.
- Self-sustainability had been achieved in Fatimid Cairo through the non-governmental organizations (NGOs) such as Al-Waqf (endowment) which provided the public services (health, education, worship, social welfare).
- Al-Hisbah played an important role in the management of Fatimid Cairo urban form and control social and economic changes.
- Intelligibility of social and economical identity of Fatimid Cairo reflected clearly on the built environment and its sustainability.
- Small parcels of Fatimid Cairo encouraged human scale buildings, and the territory became more resilient to change.
- The linear formation of Al-Qasaba and distribution of marketplaces and workshops helped to achieve economic integration and to promote competition and prohibited the monopoly.

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