

"A critical study of mechanisms for achieving social sustainability in traditional and contemporary urban structures"

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Abstract:

The achievement of social sustainability lies in the preservation of the social and cultural identity derived from the depth of the cultural heritage of the mother, through discussing the adaptation of the local environment with the trends of sustainability, and making the cultural and social determinants the basis of the process of sustainability ... Thus the most important dimension of sustainability is to achieve balance Social indicators according to the nature of the society and its mechanisms. The indicators of public sustainability can be adapted to different societies and allow each society to adapt them in accordance with the specificity of the region, the environmental conditions and the social values in which any place in the world lives. The achievement of social sustainability lies in the preservation of the social and cultural identity derived from the depth of the cultural heritage of the mother, by discussing the method of adapting the local environment with the trends of sustainability, and making the cultural and social determinants the basis of the process of sustainability ... Thus the most important dimension of sustainability is to achieve balance Social indicators according to the nature of the society and its mechanisms. The indicators of public sustainability can be adapted to different societies and allow each society to adapt them in accordance with the specificity of the region, the environmental conditions and the social values in which any place in the world lives.

A framework for the present paper has been defined in three axes. The first axis: is to clarify the concept of social sustainability and to uncover its physical and moral sides. The second axis: Building the general framework of social sustainability indicators and elements by analyzing models of traditional and contemporary communities, The third axis: the emergence of indicators on the mechanisms of achieving social sustainability and its implementation in the contemporary urban structure derived from the study of traditional urban communities

Key words

(social sustainability, traditional communities ,urban, contemporary communities).

Introduction :

The concept of sustainability is not a new or innovative term. It is a concept that has been embodied by traditional architecture throughout the world since ancient times through the compatibility and association with the environment and the efficient exploitation of the natural environment resources according to the development of trial and error over the years, For this The sustainable and environment-friendly design (Natural and social) is not a new idea, but the knowledge coverage of the importance of the social system of sustainability is severely deficient.

The challenge facing the development of urban societies is not economic, administrative or executive, but its ability to attract the population and achieve its development rates and ensure the sustainability of social life by balancing the elements that guarantee the continuity and survival of the community, namely the elements of development (environmental, economic, social) ... The main objective of the research is to extract a set of mechanisms that can be applied to achieve social sustainability in contemporary urban communities .

The methodology of the study

spatial analysis of the models of the traditional and contemporary urban communities and statistical analysis of the survey forms of the population of traditional and contemporary urban communities and survey forms for experts and practitioners to evaluate the elements and mechanisms of achieving social sustainability in traditional societies and discuss how to use mechanisms to achieve social sustainability in new communities.

Sustainability:

Sustainability is the result of three integrated pillars of environmental, social and economic issues, which aim at achieving continuity and prosperity for the land and its inhabitants. The main pillars of sustainability address the following issues (Litman,T.,&Burwell,D.(2006):

- Ecological axis: natural environment available, polluting emissions, climate change, biodiversity, shelter conservation, environmental beauty.
- Economic axis: economic efficiency, productivity, business, employment, tax burden, trade.
- Social focus: social welfare, justice, human health, the ability to live in the community, preservation of cultural and historical identity, public participation.

Social sustainability:

We can define social sustainability as "the development that meets the social needs and emphasizes the achievement of social communication without compromising the standards of privacy and in accordance with the requirements of urban communities and types of activities intended to be provided in the urban community, and focuses on the population and their desires, and achieve the sustainability of the community and attract the numbers of the target population and stability through successive generations Without change or damage to the urban environment (Bagaeen,S.&-Uduku,O.(2010). The social sustainability of the study covers two complementary sides (the moral side), the psychological dimension and the social dimension, (the physical side), which is the urban structure of society .

First: Physical Side of social sustainability

The urban environment of urban gathering is the physical medium in which man lives and provides his needs. The urban environment includes three dimensions of components (planning dimension, urban dimension, architectural dimension, (William Sanders and Alex Kerbger, ,2010):

-Planning dimension: An attempt to create the appropriate atmosphere that allows communities to find the necessary means to achieve an appropriate framework for their inhabitants, so that the comfort and well-being within the cities. It deals with the study of land uses, site planning, design of infrastructure projects, design of public service projects, road networks.

-Urban dimension: Part of urban planning deals with urban structures, and specializes in the study of the visual composition of the urban environment of buildings and spaces and public spaces and elements of coordination, natural heritage and cultural heritage of historic buildings and the orientation of construction and street facilities and public training.

Architectural dimension: A term that focuses on the building as a single unit that includes technological development and achieving human needs in order to make the building combine benefit, stability and beauty in accordance with human behavior and technological development. And specializes in the study of the external design of the interfaces and distribution of the openings and interior design of buildings and architectural appearance and achieve the optimal performance in accordance with sustainability standards.

Second: The moral side of social sustainability

The moral side includes two dimensions (psychological dimension - social dimension) (ProshanskymH.M.,&Fabian,A.K.,1986)

Psychological dimension: It is about the human being as an individual of motivational influences on behavior translated into a range of personal impressions and feelings such as hope, happiness, satisfaction, optimism and comfort.

Social dimension: A practical study of the society that deals with acts and social relations aims at forming a better society through a series of positive interactions between individuality represented in the formation of friendship, belonging, cooperation, safety

Human relationship to the urban environment (psychological relationship):

The psychological side is dealt with within the urban environment of the residential area through the components affecting the population, namely (Mandelker,D.R,2010):

-Sense of comfort during the housing unit: This concept is related to the degree of noise in the urban environment (social isolation and insufficient space) .. This is closely related to the interior design of the residential unit.

-Privacy and housing: In terms of levels of ownership, which include ownership or possession, as well as the quality of privacy, including (audio and video), privacy concerns the blocking of the transmission of sounds, and the visual privacy is directly related to the distribution of openings with adjacent and opposite building fronts.

-Housing satisfaction: Satisfaction with the availability of a space for each separate use, neighbors and friendship and kinship ties in the urban assembly, and suitable housing for current and future needs, and also related to housing aesthetic satisfaction and familiarity and security ... Satisfaction with the assembly aspects of urban depends on the architectural character and a sense of safety and calm, Cleanliness.

-Comfort in the urban environment of the dwelling: safety on the move and cross roads, with air efficiency, providing attractive scenes, and the absence of excessive movement of cars and vapors and harmful gases.

-Beauty in the urban environment: There are a number of factors or characteristics affecting the processes of aesthetic preference in general and environmental in particular (flexibility in the organization and composition, the composition within the general composition, ambiguity and anonymity in exchange for clarity .

Social interaction in the urban environment (social relations):

The sense of society is linked to the fact that the sense of society is strongly linked to the social control in the neighborhood. The following is a presentation of social needs and their achievement during the urban environment: (Atkinson,R.,&Blandy,S.,2006)

-Friendship and the formation of friendly relations nearby: proximity makes the neighbors in social contact, but a certain degree of homogeneity must be available to maintain positive communication between them. In other words, the proximity of the place may be the first cause of social relations, but not the final or sufficient cause (Gans,H.J.,1970)

-Visual communication between neighbors: encourages the development of social relations so the designer is interested in studying the locations of front and back doors and participation in the corridors leading to the house in order to strengthen social relations in residential areas

-Social interaction: Urban space occupied by the population is inversely proportional to social interaction, as well as the participation of the population and their frequency on the same services (such as parks, shops and shops) promotes social interaction ... With regard to the proportion of ownership and social interaction, increasing the share of individuals in the ownership of the place Helps to develop social ties in the local community, and to form organizations that include neighbors and support the management of the residential area and supervise the cleanliness and beautification

-Social relations and urban spaces: the shape and size of the vacuum and the distribution of elements of incorporation and traffic density corridors have an important role in influencing social relations.

-The sense of identity: Happiness in the community is not built only through good technical planning, which guarantees the dweller water and electricity and garbage collection and other services ... The sense

of identity of the community plays an important role in preserving the way of life in human settlements, the identity of the community determines the nature of communication with the outside.

-Achieving security: There is a relationship between land use and security, as well as the distribution of lighting, lines of vision and places outside the house also help to promote social communication, achieving the location in the place leads to the formation of relations between the population and push them to use the places and areas available more intensively and support their interaction and contact with neighbors.

Proposed analytical model for assessing social sustainability of urban communities:

During the review of the aspects of social sustainability we can propose an analytical model that contains the elements of the physical and moral aspects to evaluate the models of traditional and contemporaneous urban clusters by weighing each element to measure the social sustainability of each model:

A table(1): Analytical model containing the elements of the physical and moral sides to evaluate the models of traditional and contemporaneous urban clusters

Availability of element	Explain the mechanism of application	Elements of assessment of urban communities	Sides of social sustainability	
		Site	Planning dimension	
		Network Street		
		Land use		
		Services		
		Community participation		
Ratio %		No. of available element	The physical side	
		Housing		
		Spaces and public spaces		
		Site format elements		
		Construction guidance		
		Street facilities		
		General configuration		
Ratio %		No. of available element		
		Optimal performance		Architectural dimension
		Architectural appearance		
		Design of facades and distribution of openings		
		Flexible interior architectural spaces		
Ratio %		No. of available element	Moral side	
		Feeling comfortable during housing alone		
		Providing privacy and housing		
		Housing satisfaction		
		Rest in the urban environment of the dwelling		
		Beauty in the urban environment		
Ratio %		No. of available element		
		Friendship and the formation of friendly relations urban assembly		Social dimension
		Visual communication between neighbors		
		Social interaction		
		Social relations and urban spaces		
		Sense of identity		
		Achieving safety		
Ratio %		No. of available element		

Analytical models:

Research Proposal Urban Communities in Islamic Architecture as a Model for Traditional Urban Communities and Housing Authorities and Banks (Sheikh Zayed City) as a Model for Contemporary Urban Communities.

By studying the previous models, we can derive a set of results for each component of social sustainability:

First: The physical side

A. Planning dimension:

-Both traditional and contemporary communities agreed on the importance of studying the site - to achieve social sustainability (the main ways to facilitate access and move - connecting the appropriate facilities - providing services - enclosing communities with fences.

-Good planning of the street network and its inclusion according to developments that did not exist in the traditional gatherings of cars and different means of transport, which requires consideration of traffic density and what is new to achieve social sustainability.

B - the urban dimension:

-Conventional groups were able to achieve the unity of appearance and the difference of substance in the housing, there was no class or social differentiation in the façades of poor and rich dwellings, unlike the contemporary gatherings.

-The shape and function of spaces and public spaces in the traditional assemblies differed from those in the contemporary gatherings. In the traditional gatherings, the flats were represented in the squares in front of the mosques and markets. Their function is the gathering and friction of the population. In the contemporary gatherings, they are among the dwellings but do not perform the same function. Where social gathering and interaction.

C - Architectural dimension:

-The optimal performance in the design of traditional urban communities was one of the goals to achieve sustainability in both environmental and social, but contemporary communities could not achieve this optimal performance.

-The architectural appearance achieved the social sustainability of the traditional assemblies through its - distinctive architectural styles formed over the years, which contemporary groups can not achieve except by establishing laws to adhere to the unified appearance.

Second: Moral side:

A. Psychological dimension:

-The sense of comfort during housing alone is one of the most important elements of social sustainability that traditional communities and contemporary communities have achieved.

-Traditional gatherings provided the element of residential satisfaction through the units of the traditional formation of the house, as well as the use of the coordination elements of the inner courtyard to achieve social sustainability, but contemporary communities could not achieve this.

B. Social dimension:

-Friendship and the formation of relationships and friendly urban gathering of the elements of sustainability that traditional communities were able to achieve through the proportions that have become close to the place and was able to gather contemporary to achieve, but through the corridors and sidewalks surrounding buildings and parking places.

-Achieve the lack of visual contact between neighbors and the trespass, through the values of religion initiated traditional gatherings as well as respect the laws of contemporary communities.

-The traditional gatherings through the mosque, which is the nucleus of urban gathering in the achievement of social interaction between the members of the community, which could not gather contemporary to achieve.

Through these results we can divide the elements of social sustainability into (elements that have already been achieved in the traditional groupings and contemporary assemblies - elements that have been achieved in contemporary assemblies and have not been achieved by traditional groupings - elements that have not been achieved in contemporary assemblies and achieved by traditional assemblies - elements that have not been realized.

A table(2): the elements of social sustainability

Elements not realized	Elements that have not been realized in contemporary gatherings and have been achieved by traditional gatherings	Elements that have been achieved in contemporary communities and have not been achieved by traditional gatherings	Elements already achieved in traditional gatherings and contemporary gatherings		
Rest in the urban environment of the dwelling	Housing satisfaction		Feeling comfortable during alone housing	Psychological dimension	Moral side
	Achieving beauty in the urban environment				
	Social interaction		Friendship and the formation of friendly relations urban assembly	Social dimension	
	Physical spaces that maintain social relations		Lack of visual contact between neighbors		
	Sense of identity		Achieving safety and security		
Network Street	Land use		Site	Planning dimension	Physical side
	Services				
	Community participation				
	Housing				
Site format elements	Spaces and public spaces	Street facilities	Orientation	Urban dimension	
	General configuration			Architectural dimension	
	Performance optimization		Distribution of openings		
	Architectural appearance				
	Flexible interior architectural spaces				

-In order to determine the mechanisms for achieving social sustainability by studying its aspects, we find that the elements that have already been achieved in the traditional urban communities and contemporary societies are an indication of the impact of these elements and considered mechanisms to achieve social sustainability ... The elements that have not been achieved in one of the clusters, Or contemporary gatherings, they need to consider their importance as one of the mechanisms for achieving social sustainability.

Therefore, the study suggested conducting a questionnaire on these elements by random sampling of some population and experts from 10 July 2018 to 25 August 2018 as follows:

-Some residents of the traditional urban communities (Al-Sayyid Al-Badawi area in Tanta - Al-Sayeda Zeinab district in Cairo - Al-Gamaliya district in Cairo). The sample included 73 people.

-Some residents of contemporary urban communities (Al-Rehab City - Madinaty - Fifth Gathering in Cairo). The sample included 65 people.

-Some experts in the field of urban design, which included 40 people, including faculty members and practitioners in the field of architecture and urban design.

In analyzing the results of the questionnaire, some conclusions were reached on the mechanisms of achieving social sustainability:

First: The physical side

1- Planning dimension:

Conventional and contemporary groups agreed through the study of the previous models on the importance of studying the site in the planning dimension. By analyzing the results of the questionnaire (figure 1) it is clear that:

- central services are the main requirements of society's needs and social sustainability.

-Community participation and social solidarity are the most important elements for social sustainability.

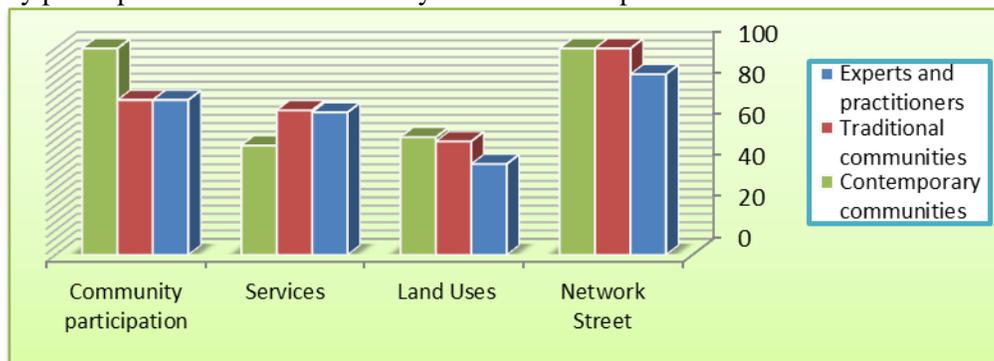


Figure (1): The survey results show the elements of the planning dimension to prove their importance in achieving social sustainability

2-Urban dimension:

Conventional and contemporary groups agreed through the study of the previous models on the importance of studying the orientation in the urban dimension and through analyzing the results of the questionnaire (figure 2) it is clear that:

-the importance of coordinating the site in achieving social sustainability.

-laws are a key factor in The general composition of the communities and help achieve social sustainability.

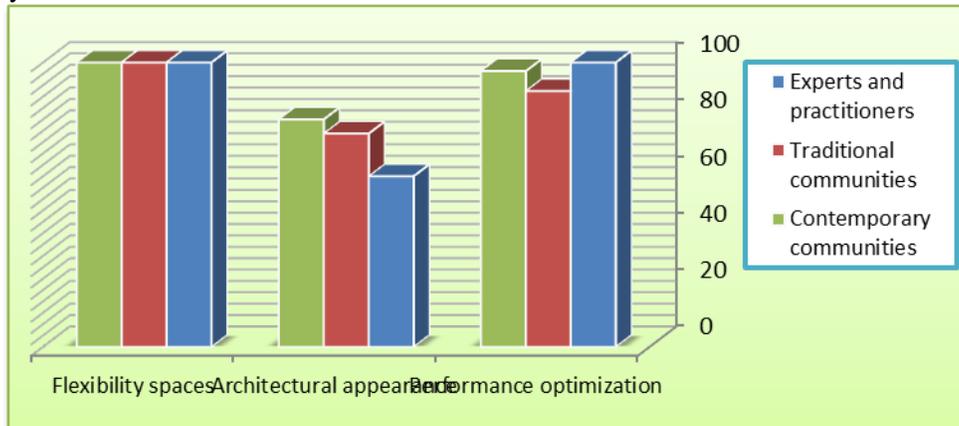


Figure(2): The survey results show the dimensions of the urban dimension to prove its importance in achieving social sustainability

3-Architectural dimension:

Conventional and contemporary groups agreed through studying the previous models on the importance of studying the distribution of openings in the architectural dimension. By analyzing the results of the questionnaire (figure 3) it is clear that:

-Achieving the optimum performance of the buildings of the most important goals in the design of contemporary urban communities This shows the importance of performance in achieving optimal sustainability Social .



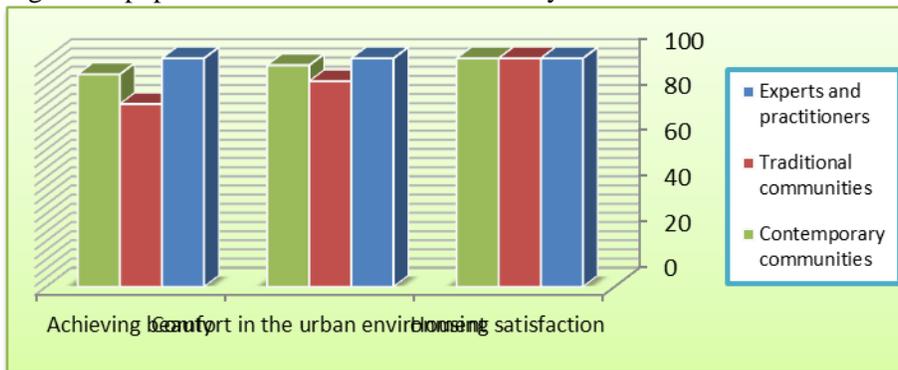
Figure(3): The survey results show the dimensions of the architectural dimension to prove their importance in achieving social sustainability

Second:The moral Side:

1-Psychological dimension:

Conventional and contemporary groups agreed through studying the previous models on the importance of studying the sense of comfort during the housing unit in the psychological dimension and through analyzing the results of the questionnaire(figure4) it is clear that:

- the importance of housing satisfaction in achieving social sustainability.
- the importance of rest in the ocean To achieve social sustainability.
- Engineering theories and units of measurement are important for achieving beauty in the facades, which reflect the feeling of the population comfort and sustainability.



Figure(4): The questionnaire results show the components of the psychological dimension to prove their importance in achieving social sustainability

2-Social dimension

- Traditional and contemporary societies have agreed through the study of previous models on the importance of studying friendship, forming friendly relations with urban gathering, non-visual communication between neighbors, achieving security and safety in the social dimension,Thus, public spaces in urban communities support social sustainability.
- does not deny the importance of the sense of identity in support Social sustainability.
- the internal spaces of the housing to achieve sustainability Social .

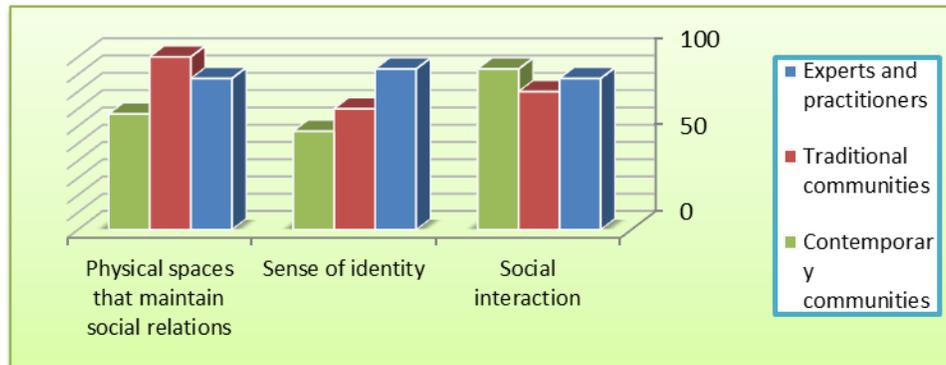


Figure (5):The results of the questionnaire illustrate the components of the social dimension to prove their importance in achieving social sustainability

Results :

First: The results of the analysis of study models:

1-The traditional urban communities in Islamic architecture have been able to meet the material and moral needs of the human being through their component elements and thus achieve social sustainability.

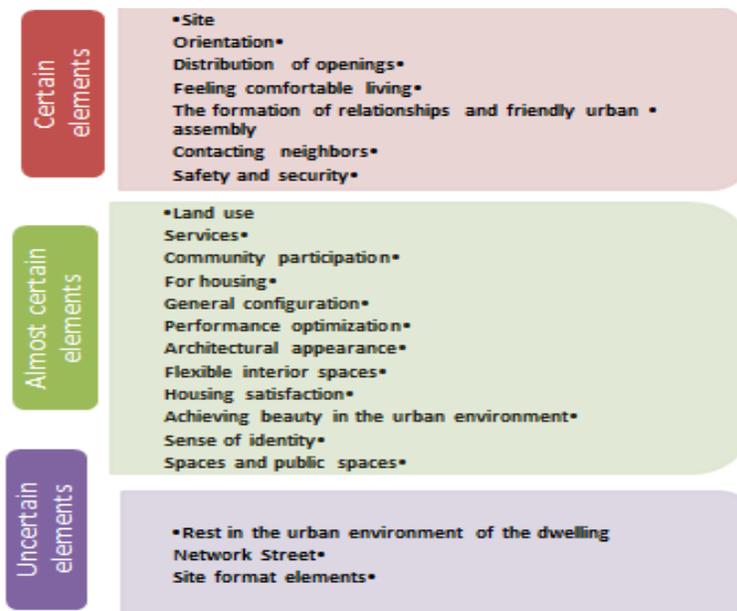
2-The urban communities managed to achieve some elements of social sustainability (location - sense of comfort during the housing unit - orientation - the distribution of openings - friendship and the formation of relations with urban gathering - communication between neighbors), but did not achieve other elements with the same efficiency.

3-The elements that affect the social sustainability in the urban communities can be divided into:

-Certain elements: those elements that have been proven to be repeated in traditional and contemporary urban communities.

-Almost certain elements: those elements that have been proven to be repeated in traditional communities and have not been repeated in contemporary societies.

-Uncertain elements: those elements that have not been repeated in the urban communities of traditional and contemporary.



Second: The results of of the questionnaires:

A random sample of the inhabitants of some urban communities and the inhabitants of some urban communities and some experts and practitioners proved the importance of certain elements and the

uncertain elements that have been repeated in traditional urban communities, especially Islamic ones, which have a great impact on social sustainability. Applied in contemporary societies such as:

Mechanisms of applying elements to achieve social sustainability in contemporary urban societies	Elements affecting social sustainability	Dimensions	Sides of social sustainability	
it is important to stay away from the mixed use of the land, while providing a center for daily needs for easy access	Land use	Planning dimension	The physical Side	Almost certain elements
Central services are the main requirements of the needs of society	Services			
Social solidarity and the importance of society, whether through the system of endowments or any alternative	Community participation			
He rejected the existence of class differentiation for the external appearance of the rich and the poor and the creativity of the architect in the treatments	Housing	Urban dimension		
Provide spaces and public spaces and support the requirements and needs of contemporary society to encourage members of society to social interaction in a modern way	Spaces and public spaces			
The provision of laws to organize and find a balance and homogeneity between blocks and spaces and the organization of Bridges urban communities deepen respect for social relations and maintain privacy	General configuration			
Achieve the optimum performance of the buildings of the communities and achieve environmental sustainability	Performance optimization	Architectural dimension		
The existence of a uniform architectural appearance in the buildings of the urban communities	Architectural appearance			
The interior designs of the dwelling must achieve flexibility and match the expected growth movement of the individual members of the household	Marouna interior architectural spaces			
Studying the needs of the current and future population for the Shura with continuous satisfaction of accommodation and places of activities	Housing satisfaction	Psychological dimension	Moral side	
Using geometrical theories and measurement units to achieve beauty	Achieving beauty in the urban environment			
Make social interaction a goal in the design of streets, administrative areas, commercial areas, services, assembly areas, traffic congestion and traffic junctions by providing the appropriate spaces for not changing one another and creating a spirit of cooperation that encourages social interaction	Social interaction	Social dimension		
The allocation of residential spaces between residential buildings encourages the residents to come out and identify and create friendly relations between neighbors	Physical spaces that maintain social relations			
Feeling comfortable in the house as well as gathering and providing all the needs in addition to the formation of friends there is a strong link to the resident place and support and give a sense of belonging and identity must be made available to gatherings	Sense of identity			
The flexibility in designing the street network is one of the necessary elements to study the new urban communities in order to face the .continuous population growth and to achieve social sustainability	Rest in the urban environment of the dwelling	Psychological dimension		Moral side
One of the most places where friction arises between individuals and therefore should regulate the traffic gatherings well and provide parking spaces in a manner commensurate with the number of population and the number of those interested in services as well as respect the distances of walking and walking ways for bicycles	Network Street	Planning dimension	The physical Side	Uncertain elements
The layout of the site is not only land plots, but the creation of seating areas and the exploitation of all the elements of the site coordination, which attracts a large number of population gatherings to create social .interactions between individuals and families	Site format elements	Urban dimension		

Recommendations:

- The need to design urban communities to achieve the elements of social sustainability to strengthen the sense of community members of the identity and belonging to the community of production and progress.
- The design of small urban units should be managed so as to ensure an appropriate amount of interaction within them to provide stability to the population and ensure the sustainability of these gatherings. The planning and design of urban communities is the means by which the quality of life can be achieved, especially its social aspect. Population and achievement of targeted development rates, in addition to its ability to change the habits, traditions and behavior of the inhabitant or user.

References

- 1-Abdul Baki Ibrahim - "The rooting of cultural values in the construction of the contemporary Islamic city" - Ajjal for publication and distribution – 1982
- 2-Atkinson, R., & Blandy, S. (2006). *Gated Communities*, Routledge.
- 3-Bagaeen, S. & Uduku, O. (2010). *Gated Communities: Social Sustainability In Contemporary And Historical Gated Development*. Earth scan
- 4-Gans, H. J. (1970). *Planning And Social Life*, In R. Gutman, & D. Popenoe (Eds.), *Neighborhood, city, and metropolis: an integrated reader in urban sociology*, Random House New York.
- 5-Litman, T. (2008). *Well Measured: Developing Indicators For Comprehensive And Sustainable Transport Planning*. British Columbia: Victoria Transport Policy Institute (In) Oswald, M. R. (2008), *Rating the sustainability of transportation investments: corridors as a case study*, MSc. Thesis, the Faculty of the University of Delaware. 65
- 6-Ministry of Housing, Utilities and Urban Development, General Organization for Urban Planning, New Urban Communities Authority, Strategic Plan, General of the Sixth City of October and Sheikh Zayed as one city, outputs of the first phase study, draft technical report of the current situation, June, 2008
- 7-Proshansky, H. M., & Fabian, A. K. (1986). *Psychological Aspects Of The Quality Of Urban Life*, In D. Frick (Eds.), *The Quality Of Urban Life: Social, Psychological, And Physical Conditions*, Walter de GruyterMandelker, D. R. (2010). *Designing Planned Communities*, New York Bloomington, iUniverse, Inc. 67
- 8-Sabra Jaber, Shaima Hamid Al-Ahbabi - "Mechanisms for Achieving Social Sustainability in the Traditional Urban Structure - Engineering Journal Baghdad University - Issue 3 Volume 17- 2011
- 9-Shafiq Amin Baara "The Garden in Islamic Architecture" - Master Thesis - Faculty of Graduate Studies An - Najah National University - Nablus Palestine 2010
- 10-Shaima Hamid Al - Ahbabi - "Social Sustainability in Local Architecture" - PhD Thesis - Department of Architecture - Baghdad University 2010
- 11- Sheikh Zayed City Authority, New Urban Communities Authority
- 12-William Sanders and Alex Kerbger, Translation by Saleh Bin Ali Al-Hathall (2010), *The Origin and Development of Urban Design 1956-2006*, Design Magazine, Harvard University, Spring and Summer 2006
- 13- www.google.com/SheikhZayedCity