



The Changes in the urban roles of the public spaces and its impact on the future plans of Great cities centers

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1 ABSTRACT

The Great cities center all over the world have common features in its structure, Such as The Historic district that represent the oldest part of the city, the Central Business district "CBD", the Main of public transportation networks, and many other urban components.

Those mentioned urban components including Public spaces, such as the Central Parks, Main squares and pedestrians Plazas which represent the Social Activities of a great city center do not exist as the same as in the rest of the city. at the same time they have urban roles within the urban structure of the great cities center. Not only the traditional Urban role but also the new roles that appaiers according to the global changes (political, social, economical, environmental issues) in the 21 century .

This paper aims to determine the new urban roles of the public spaces in the great cities center and its impact on future plans, to be applied in the developing plans. Not only on Cairo city center but also on the other world's Great cities. Our Methodology based on analyzing the structure of the Greater Cairo city center, focusing on the distributing, classification of the Public spaces and its urban characteristics.

And Using the SWOT analysis to evaluate the existing Public spaces in the Greater Cairo center and its urban performance related to the new social activities. The study found that there are many urban problems about the Public spaces in Cairo city center affect its performance. Cairo center suffers from shortage of the Public spaces, considering that most of its squares designed as automobiles squares, such as the famous square of "El-Tahrir". **KEY WORDS:** Urban roles, Public spaces, Great Cities, Future plans

2 INTRODUCTION

Great cities all over the world became featured with some common urban features, which is clearly could be noticed in the main urban components of the centers of great cities, those components may be not exist in the rest of the city, such as the historical heart that represent the oldest part of the city, CBD, the main stations for public transportation networks, and many other urban components, the public spaces are considered as one of the common urban components in the great cities centers at the same time they don't exist as the same as in the rest of the city, such as central parks, specialized gardens, pedestrian grand plazas and squares which may include national symbols concerned by the citizens of these countries, those unique public spaces represent the social life of a great city and considered as a measure of its vitality, these successive public spaces could be clearly seen in cities like "London", "Paris", "Rome" and other world global great cities centers.

Those public spaces as an agglomeration of people, objects and events¹ not only in locally way but also in globally way had effected with the global changes in the last decades as a part of the new revolution of communication technologies. Many changes related to (Environment, Social, Economic)² had affected the public urban spaces, causing changes in the roles and functions in different ways (losing, improving or emerging new urban roles and functions), which leads to rewrite the basis and the theoretical concepts of the designing of public spaces .

This study hypothesis is that urban roles of the public spaces in great cities all over the world had been changed as a result of global effects which related to the sustainability principles.

¹ .P. Marcuse and R. Van Kem, Globalizing Cities, A new spatial order, London. 2010. P.5.

² .The environmental changes such as Urban Heat Island Effect (UHIE) and Green house effect, the economical changes such as the spread of the capitalism and free trade, and the culture changes such as the culture of freedom and expressing the views and opinions of some people.

The main aim of this study is to determine the way of how the public spaces had been changed and the effects on its urban roles in order to set guidelines for the future plans of great cities centers public spaces.

Greater Cairo city center was chosen as the main case study with some samples from other world great cities, the results could be applied in future developing plans for Greater Cairo city center and other greater cities, with consideration of the local conditions of each case.

Questions the Research Answers:

1. Why the public spaces of the Great Cities Centers?
2. What are the The causes of changes in the urban roles of public spaces in the great cities centers
3. What are the changes that happened and affect the urban public spaces in cities center?
4. What are the guidelines for the future plans of great cities centers public spaces?

3 WHY PUBLIC SPACES OF GREAT CITIES CENTERS?

The Great cities centers were chosen for these reasons:

1. The public spaces are common urban components in all the levels of urban settlements even the rural settlements.
2. The great cities are the urban units¹ which are more affected and responding to the globalization changes more than any other local urban units in their countries, which make many urban experts considered them as "Global cities"/"World cities"², because they have special facilities and infra structure like being connected to one or more international airports, main station of regional and may be international trains network, besides attracting some facilities like opera house, museums, grand shopping malls and department stores, the headquarters of international corporations and financial firms, regional and international organizations and more. Those mentioned facilities emerging attractive activities that making the public spaces of great city center as a hub offering the places to the local and international events, which means to make those public spaces in touch with the global changes more than other spaces in their local societies.
3. The variant and unique activities and events which held at the public spaces of great cities centers.
4. The spatial organization of great cities and its centers were being featured with common urban components beginning of the last decades of the twenties century in spite of the diversity of the local physical environments, and the different social, culture, economical conditions, it can be clearly noticed in great cities like Chinghai, Cairo, Mumbai, and many other cases, which make the researches about its central public spaces useful and applicable on other cases with consideration of the local condition of each case (see figure 1).
5. The high value of the land prices in the great cities centers besides the paucity of vacant plots makes the decision to hard, besides in some cases the local agencies deduct spaces for other public facilities from the public spaces, which imposes urban experts to look for new ideas and solutions to grow up public.

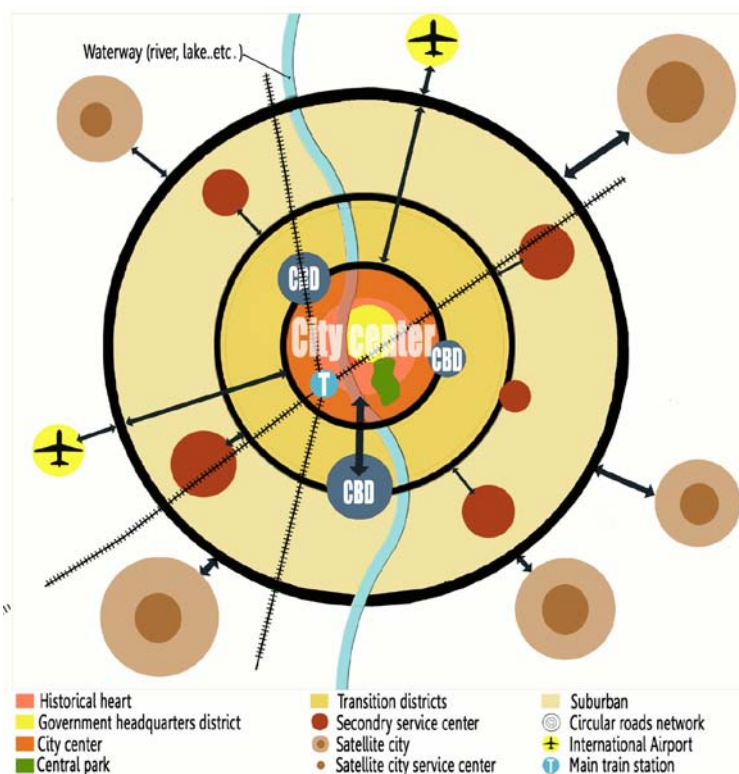


Figure 1: The spatial organization of great cities and its centers not only in the United states, western Europe, far east Asia, but also the great cities of developed countries, were being featured with common urban components

¹ . Ali Madanipour , Design of Urban Space ,An Inquiry into a Socio-spatial Process, John Wiley and sons ,New york 1966 p. 24

² . P. Marcuse and R. Van Kem , Globalizing Cities, A new spatial order, London.2000 . p.01

4 THE CAUSES OF CHANGES IN THE URBAN ROLES OF PUBLIC SPACES IN THE GREAT CITIES CENTERS

In order to understand the changes in the urban roles of the public spaces of great cities centers we should first determine the effects and the factors emerging these changes.

4.1 The effects caused by the global changing about environmental issues

Concern for the environment as a vital factor on the physical environment of the human settlements started early after the second world war, notably after the harmful effects of air pollution in the great industrial cities in western Europe such as London, now a days the main environmental issue is global warming and its negative effects on the future life on earth, of course the great cities were the most responsible of the emissions of carbon, which lead urban experts to review the current land use and make more concert about the nature urban roles in the physical environment, enlarging the green areas at the public spaces was one of direct ideas¹.

4.2 The effects caused by the global changing in the social cultural visions

With regard to social cultural concepts, the spread of freedom ideas and the right to express the opinions of some groups peacefully, the public spaces notably in the great cities centers became like an arena embraces these activities, especially that the public spaces of great cities centers are close to decision makers headquarters, those activities start early in western world and recently in Arab world.

Also the culture visions of freedom changed the behavior of the Arab and Muslim citizens towards public spaces, they were usually preferred to held their events and outdoor activities in private or semi public spaces, now it's usual to see Arab, Muslim families, friends, males and females using public spaces (see Figure 2) which make a review about the current available public spaces and its future plans an urgent issue, in Arab great cities centers like Cairo, Damascus, Baghdad, the public spaces were designed manly to serve automobiles not pedestrians (see Figure 3)

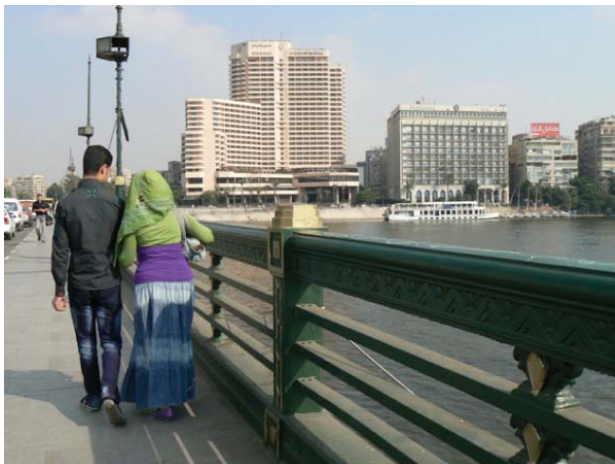


Figure 2: now it's usual to see Arab, Muslim families, friends, males and females using public spaces.



Figure 3: in Arab great cities centers like Cairo, Damascus, Baghdad, the public spaces were designed manly to serve automobiles not pedestrians, the Omayyad square, center of Damascus.

4.3 The effects caused by the global changing in economic concepts

The concepts of world free trade, market economy, and the spread of the Capitalism became a global effect, these economical changes imposed a typical lifestyle for the citizens of great cities all over the world²

¹ . Georges A. Tanguay, et al., "Measuring the Sustainability of Cities: An analysis of the Use of local Indicators", Elsevier, Ecological Indicators Vol.(10) 2010. P.(407-418)

² . Ali Madanipour , previous reference p. 54

Also as the great cities centers suffers from the paucity of vacant lands and its high value prices, the economical benefits of the land lead the decision maker to reduce the public spaces to give way for other land uses.

4.4 The effects caused by the continuous progress in communication technologies

Humans and their outdoor every day life activities are the evidence that a public space is exist, The continuous progress in communication technologies affected the need of meeting activities in public spaces, "in pre-modern urban settings, public spaces provided arenas for public communications"¹ but now a days it's usual to meet your friends virtually over the internet, therefore the post modern spaces designers refuge to create new ideas emerging new attractive activities, it's clear that there's a need for more studies about planning future public spaces to face the negative effects of progress in communications on the needs of public spaces.

5 WHAT ARE THE CHANGES IN THE URBAN ROLES OF PUBLIC SPACES IN GREAT CITIES CENTERS?

According to the main hypothesis of this study, the urban roles of the public spaces in great cities centers had changed; therefore the question is what those changes are?

In order to recognize these changes we had an analytical study applied on a main case study, it was Greater Cairo city center and the observations about some well known public spaces in world great cities, today great cities centers has the same urban spatial structure, and some common urban components, with considering to the local conditions of each case².

The public spaces are one of those common urban components of great cities centers, they acting the same main urban roles whatever the local conditions were.

Therefore a SWOT analysis was applied on Greater Cairo center public spaces based on field visits last summer 2011, to evaluate the current situation of the public spaces urban roles, and to find out the changes in the urban roles of those spaces.

5.1 The spatial urban structure and the public spaces of Greater Cairo city center

5.1.1 Urban components and spatial organization:

The Greater Cairo city center is composed of several functional zones as follows:

1. The historical heart of Cairo modern center known as (khedivial Cairo) where's most of buildings and streets network are back to the end decades of nineteen's century and the beginning of twenties century, with new classical style this zone was called "Paris of the east", contains mix land uses of commercial trade activities, cultural, recreation uses.
2. The governmental headquarters, ministers, the parliament, Apdeen palace which was the seat of government until 1952.
3. A central business district still in development,

The urban life in a great city had common requirements even with the local conditions, the way the citizens of great cities deal with the city center public space became the same especially for those with low incomes, they considered the public spaces as a free extension compensates the narrow areas of their housing units, and give them the chance to have the experience of the outdoor activities.

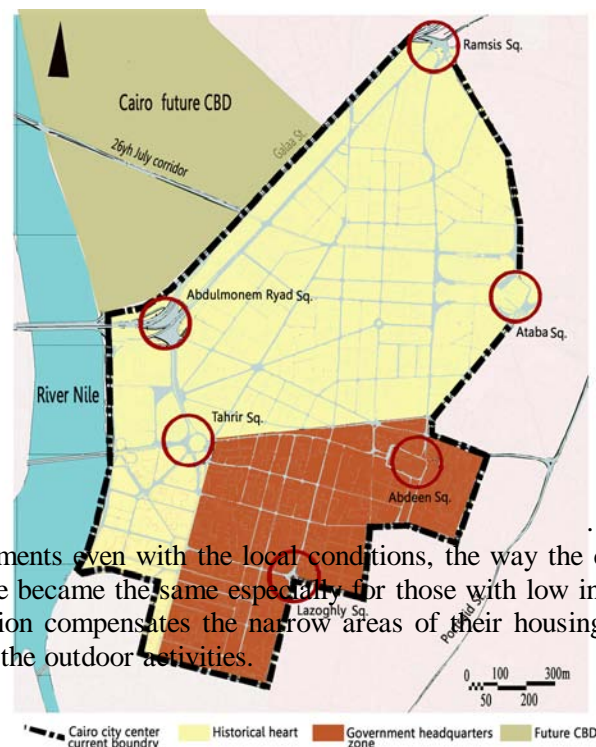


Figure 4: The Greater Cairo city center is composed of several functional zones as follows

¹ . Ali Madanipour , previous reference p.144.

² . Andrew Blowers and Bob Evans , Town planning into the 21st century, London.1977.p.138

5.1.2 The public spaces of Greater Cairo city center:

The followed table showing the main public spaces and its current characteristics in Greater Cairo city center:

No.	The public space	Area per acres	characteristics
1	Ramses square	1.5 acres	<ul style="list-style-type: none"> -Two plazas in front of trains main station and the Fateh mosque with green areas - The total public space is not continuous, intersected with cars paths. - The green areas are surrounded by a metal fence. - Variant common activities of public spaces with many street vendors.
2	Squares of opera, Ataba and the Azbakeya park	10 acres	<ul style="list-style-type: none"> -A pedestrians plaza with a classical fountain and a statue from 19th century, in front of old opera house (not exist a multistory cars parking instead). - Wide pavements and green areas with some palms at Ataba square. - The remaining of Azbakeya park with some rare unique trees and palms. - some different activities such as a permanent street book fair, local street market, street fast food and drinks vendors attractive the crowds.
3	The supreme court plaza	1.3 acres	<ul style="list-style-type: none"> - A triangular pedestrian plaza with some trees at borders. - The plaza is used as cars parking.
4	Abdelmonem Riyad square	2.1 acres	<ul style="list-style-type: none"> - A plaza with a modern era statue, and the main bus station of city center. - Some areas of this public space are intersected by lifted streets and bridges.
5	Tahrir square	8.2 acres	<ul style="list-style-type: none"> -Central circular green area surrounded by cars paths, recently used as a pedestrian plaza -A pedestrian plaza with some green areas and palms in front of a governmental building. - A grand future plaza with green areas (still under construction with an underground multistory cars parking in front of the Egyptian museum. - Wide pedestrian pavements 6-15m width. - A local competition is held to set a new urban design for the whole square and the public spaces to the memory of the 25th Jan. Egyptian revolution.
6	Falaky square	1.2 acres	<ul style="list-style-type: none"> - A longitudinal central pedestrian plaza with average width of 20m. - The plaza is used as cars parking.
7	Apdeen square	3.6 acres	<ul style="list-style-type: none"> - Green areas with trees and palms in front of the main entrance of Apdeen palace and museums. - needs to review the current design to attract pedestrians activities.
8	Unusual spaces	Longitudinal spaces	<ul style="list-style-type: none"> - The wide pedestrian pavements of the bridges along the river Nile. - Very livable with youth citizens used the pavement to spend nice time with a panoramic views of Cairo center, and enjoying street foods and drinks.
9	Nile cornice	Longitudinal spaces- width 8 up to 20 m	<ul style="list-style-type: none"> -Many common activities for a water front public space. - There are remarkable old palms and trees.

(Table 1) showing the main greater Cairo city center public spaces with areas in details. (See figures 5, 6) showed a perspective and a map with sites of the above mentioned public spaces.

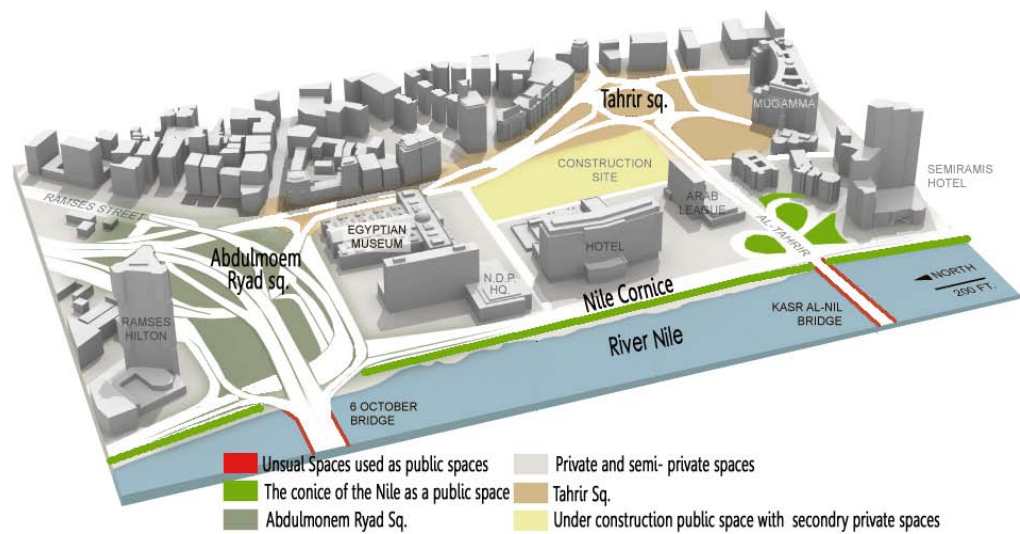
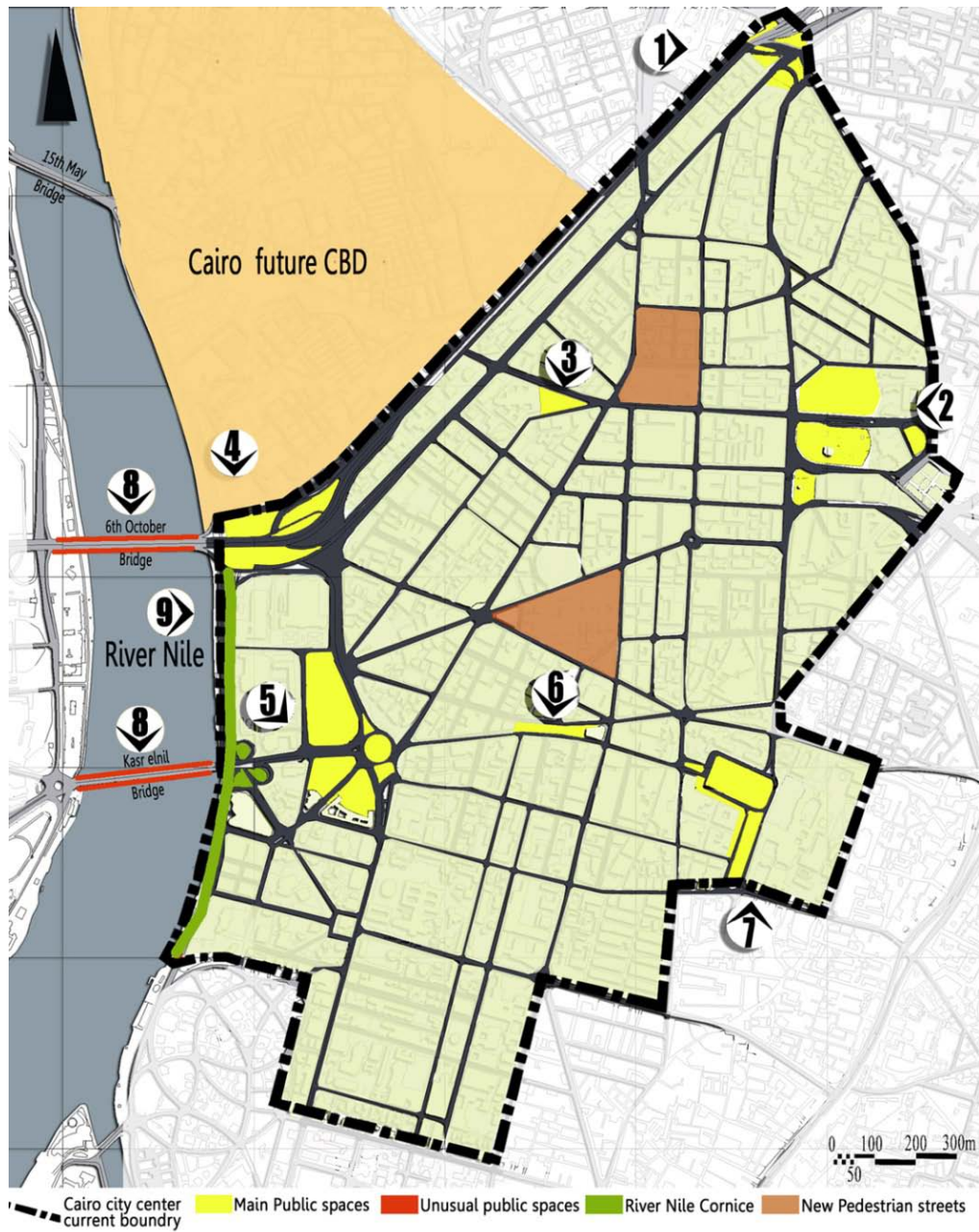


Figure 5, 6: the main public spaces and its current characteristics in Greater Cairo city center

5.1.3 Using the SWOT analysis to evaluate the Public spaces in Cairo city center:

This SWOT analysis depends on the observations were noticed last summer by several times life visits to the greater Cairo city center public spaces, the Main issues of evaluation were:

1. Environmental changes
2. Social Cultural changes
3. Economical changes
4. Tracks paths, public transport and the infrastructure
5. The possibility of the public spaces future expanding
6. The urban structure and the current, future roles of public spaces

Evaluation criteria	Strength	Weakness	Opportunities	Threats
Environment al changes	<p>Success of experiments of inverting some tracks streets into pedestrians paths, and designing these paths landscape, providing street furniture with concerning to the planting of trees, which supported the opinions of the local urban experts about applying these experiments on more streets, squares of Cairo city center</p> <p>The upgrading of many of public transportation means in the city center, disposing of the old fleet of Cairo taxis and public buses which were causing a high ratio of the public spaces air pollution</p> <p>The local urban management agencies applied some urban laws and restricts supporting the environment, such as the restricts on cutting trees.</p>	<p>The green areas are very rare in the whole city center; its percentage is very low in compare with the total area of the public spaces available in the city center.</p> <p>Most of the public spaces are sunny with out enough shaded areas which causing more heating at summer time.</p> <p>The thermal properties of the current used finishing materials of the public spaces are not suitable.</p> <p>The high traffic of tracks in the city center and the traffic jams causing more heat emissions and air pollution which affected the visitors of the public spaces (Jaica report)</p> <p>The spread of subway lines under the city center reduced the available suitable areas for planting trees and palms.</p>	<p>The spread of the concepts of sustainability and its applications between the local urban experts</p> <p>The appropriating of the requirements of sustainability and the providing of welfare and efficiency of using the public space.</p> <p>The public awareness among the city citizens about supporting the environment.</p> <p>The progress in technologies which could be used to enlarge the benefits of the limited area of the public spaces in order to make positive effects on the environment and reduce the heat emissions.</p>	<p>The annual increasing in tracks numbers intersected the city center (jaica report)</p> <p>The limited area of the public spaces is not helping to make enough benefits to set plans to reduce the global heating.</p>
Social Cultural changes	<p>The Tahrir square turned into a weekly cultural arena agglomerate the citizens visitors to express there political opinions in festively way.</p> <p>Attracting wide sectors of the Egyptian cultural society to the city</p>	<p>Usually the number of the visitors notably in Friday is over the square capacity, which affected the other urban roles of the square.</p>	<p>The repeated closing of the streets surround the square showed the possibility of redesign the whole area of the square including tracks paths to be a pedestrian square.</p> <p>The stimulus caused by the society cultural concepts changing,</p>	<p>The new culture of the internet and the increasing numbers of the users of the social sites may reduce the interest of wide sectors of the society of using public spaces to spend free times, notably the youth generations.</p>

	<p>center public spaces, notably Tahrir square, and the other near public spaces, which gives rising and life activities to those spaces.</p> <p>The city center public spaces offer free space to the low income sectors of the society, which emphasize the urban roles of those spaces.</p> <p>The unusual usage of the available spaces in the city center to compensate the lack of public spaces, such as the case of the wide pavements of the bridges along the river Nile which became one of the favorite public places to the citizens of Greater Cairo.</p> <p>The public spaces became the suitable available spaces for the majority of the low income citizens, and they make these public spaces alive with variant activities.</p>		<p>which calling to the freedom of expressing opinions, the interaction between the people of the society, is considered as a positive motive to use the public spaces.</p>	
<p>Economical changes</p>	<p>The continues increasing of services prices forced wide sectors of the city citizens to use the free public spaces instead of the private spaces, which kept the vitality and emphasized the importance of the public spaces.</p>	<p>The high land value of the city center, caused the difficulty of the future expanding the current exist public spaces</p> <p>The public spaces of the city center attracted some informal economical activities such as street vendors; those activities had negative effects.</p>	<p>The possibility of achieving benefits for the local departments managing those spaces, like the advertising.</p>	<p>The Higher economical value of the investments of the land in other activities and land-uses than to be used as public spaces encouraged the future privatization of the available current public spaces.</p> <p>The lack of the free lands and lands high prices will encourage the local government to deduct areas of the public spaces to the future demands public projects.</p> <p>The continuity of the High rates of inflations besides low wages may</p>

				pushed some of the society sectors to prefer to stay home than to go to public spaces.
Tracks paths, public transport, and the infrastructure	<p>The availability of a good public transport means connecting the city center public spaces to the rest of the city.</p> <p>The availability of an integrated infrastructure serving the public spaces is supporting the current urban roles of those public spaces.</p>	<p>Most of the public spaces in the city center were designed to meet the needs of automobiles paths, at the same time all the squares were mainly designed for serving the automobiles paths.</p> <p>The inadequate of cars parking in the city centers is reducing the numbers of some society sectors to use the public spaces.</p>	<p>The existing official future plans of the city center supported the services of the public spaces, such offering new public transport lines to connect the main public spaces to the rest of the city.</p>	<p>Continues progress of the communication technology and the virtual meeting over the internet may cause to reduce the need of public spaces as a place for meeting.</p>
The possibility of the public spaces future expanding	<p>The positive exist experiments of expanding the public space of the city center by converting some local tracks streets into public spaces and pedestrian paths (see figures 7, 8)</p>	<p>The annual increasing rates of the land prices besides the inadequate of providing enough areas for the existing needs for public facilities like cars multi-story parking.</p>	<p>The existing plans of converting more tracks paths into pedestrian public spaces.</p> <p>The progress in the drilling and under ground constructions support the possibility of offering more spaces for some land-uses like cars parking to be under ground which will offer more spaces for public spaces.</p>	<p>The difficulty of the public spaces future expanding.</p>
The urban structure and the current, future roles of public spaces	<p>Most of the city center public spaces enjoyed remarkable livable unique sites which considered as hubs for variant activities and services like the under ground entrances, bus stations... etc.</p> <p>The main public spaces became more complicated, they consist of several minor spaces semi-public and private within the main public spaces.</p> <p>Acting several variant</p>	<p>The lacking of new architectural urban ideas in the current urban spaces.</p> <p>The current landscape design, street furniture of the public spaces is not suitable for the current urban roles of those spaces.</p>	<p>The possibility of using new architectural urban concepts to offer new extra spaces like using public institutes roofs and many other ideas.</p> <p>The new growing urban roles will help to evaluate the future plans to offer innovative public spaces.</p>	<p>The growth of the future need of the common land-uses of the city center may affect the current public spaces to be reduced.</p>

	activities at the same public space smoothly and efficiently.			
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(Table 2) the Swot analysis to evaluate the current situation of the Public spaces in Cairo city center



Figure 7, 8: The positive exist experiments of expanding the public space of the city center by converting some local tracks streets into public spaces and pedestrian paths

5.1.4 The results and conclusion of the Cairo city center public spaces SWOT analysis:

The conclusion of the swot analysis showed the follows:

1. The ratio of public spaces is very low; it represents about 4% of the whole area of Cairo city center, which means that the per capita is less than the 2m2. (See table 1, figures 5, 6) showed these public spaces with areas in details.
2. As a result of the low area of public spaces the green areas were too low also.
3. The squares and plazas were mainly designed for automobiles.

4. The pedestrian paths are new to the Cairo city center, some local streets were closed for pedestrians as a project in the end of twenties century (see Figure 7, 8)
5. The street furniture is poor it's very hard to find a free seat, or public toilets, and other
6. According to the lack of suitable equipped public spaces, the private spaces took some of the urban roles of the public spaces in Cairo city center, like providing spaces for rest and relaxation.
7. Unusual spaces were converted to be used as public spaces, like the wide pavements of the bridges along the river Nile from city centre to west areas of the city, the pedestrian use these pavements as a terrace providing a panoramic views of Cairo city centers, with street food, drinks vendors who offers chairs for money (see figure 9, 10)
8. Indoor Net cafes which offering free wireless connecting to the internet with outdoor semi private spaces are spreading in Cairo city center, those spaces attract a wide sectors of youth people, those cafes and variant private spaces are spreading, the problem were the continuous privatization of Cairo city center public spaces.
9. Variant activities are taking place in these public spaces, usual activities and some new activities for the citizens of Cairo like the agglomerations of youth people having the experience of expressing their political opinions by singing, dancing, using temporary stages (see figure 11)
10. Most of the public spaces became more complicated as main public spaces with other minor spaces mostly semi-private or private spaces.



Figure 9, 10: Unusual spaces were converted to be used as public spaces, like the wide pavements of the bridges along the river Nile from city centre to west areas of the city, the pedestrian use these pavements as a terrace providing a panoramic views of Cairo city centers, with street food, drinks vendors who offers chairs for money



Figure 11: Variant activities are taking place in these public spaces, usual activities and some new activities for the citizens of Cairo like the agglomerations of youth having the experience of expressing their political opinions by singing, dancing, using temporary stages

6 CONCLUSION AND RESULTS DISCUSSION:

The observations on the local case of Cairo city center public spaces, and other great cities in particular Europe showed that there are Types and modes of the changes of the great cities centers public spaces roles, caused as a reason

6.1 Type of changes of the great cities centers public spaces roles:

6.1.1 Reducing in Some urban roles:

Some of the public spaces common roles were affected and lose its importance as a result of the continuous progress in the communications technology, the urban role of providing free suitable places were one of the main urban roles of public spaces, in pre-modern urban setting, public spaces provided arenas for public communications. Notably those urban spaces which were designed to offer comfortable spaces with vistas or natural overlooking.

The available communication technology encouraged people to meet each other over the internet; these virtual meetings with more privacy were an effective factor of reducing the importance of using public spaces as arenas for public communications.

On the other hand the changing nature of development companies and the entry of the finance industry into built environment production and management have partly led to what is widely known as the privatization of space¹ This phenomenon were clearly noticed in the spaces of city center, where the spaces has its maximum price values in the city, besides the value-added of those spaces in case of being invested in commercial projects, even the public properties were affected, the local municipal agencies had resorted to use the public spaces as an important resource of income by giving a usufruct for investors.

The continuous process of privatization of public spaces will be the main challenge of the future exists of the public spaces especially in great cities centers

6.1.2 Emphasizing, upgrading for some common urban roles:

The early ongoing social changes of the western societies where a decline of public sphere has been noticed (Calhoun, 1992), the improvement of the economic and the continuous development of cities in the 1980s emphasize the urban roles of public spaces in the western Europe cities, the welfare societies gives vitality to those spaces, then in 1990s the established democracies in Eastern Europe, and the development of a civil society were a vital reason for the rising of the importance role of public spaces as an arena independent of the state².

The public spaces especially those of city centers has played an important role as space for meeting and a free container for social movements, besides being near to the decision maker headquarters, recently the same case were happened in the Arab spring, the public spaces of Cairo city center and other Arab great cities centers were the spaces that not controlled by private individuals or organizations, these spaces were always open to general public, the variant economic sectors, gender, age, and ethnicity sectors have raised and emphasize the common roles of great cities centers public spaces, there for the Great cities public spaces became a home for local and national festivals, carnivals, expeditions, some great cities centers have its fame as a cause of those activities such as Rio de Janeiro, the love parade in Berlin (see figures 12, 13)

¹ . Ali Madanipour , previous reference p. 144,145.

² . Ali Madanipour , previous reference p. 11.



Figures 12, 13: The Great cities public spaces became a home for local and national festivals, carnivals, expeditions, some great cities centers have its fame as a cause of those activities such as Rio de Janeiro, the love parade in Berlin

6.1.3 New urban roles:

Some new urban roles were emerged as a cause of the global changing of environmental issues and the global changing in economic concepts, as follows:

6.1.3.1 New roles caused by the global changing of environmental issues:

According to the development and as a Result of evolution within the great cities, especially in the developing countries led to the accumulation of business centers in those areas at the expense of public open spaces, which in turn led to increased pollution in these cities due to the following¹:

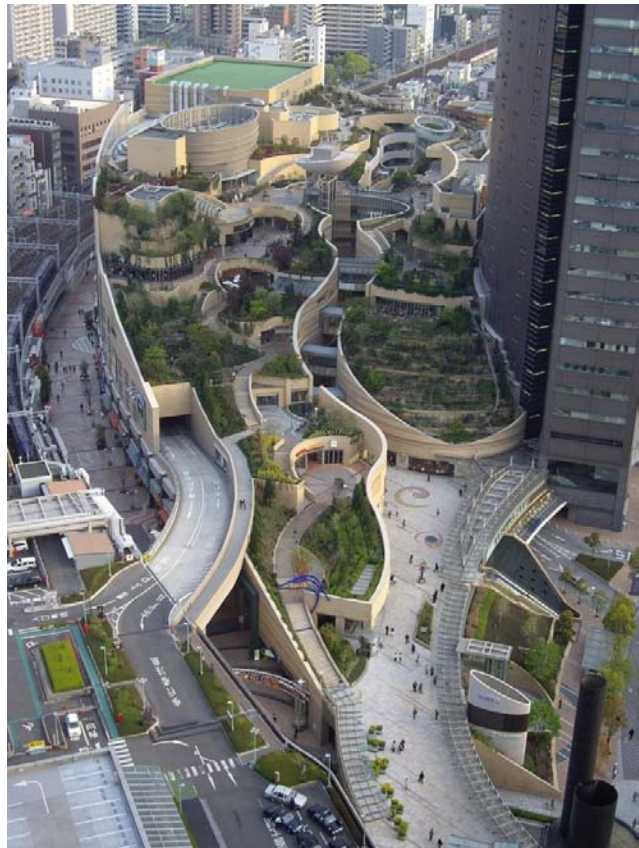
1. Reduction of The Green Areas at the expense of the establishment of commercial and administrative areas and increasing the roads network and infrastructure (eg. the opera square in Cairo).
2. Non-deliberate distribution of green areas within the open spaces.
3. Accumulation rate for the buildings - increasing the ratio of the Solid (buildings) against the Voids (open spaces and green areas) - that affect the wind speed and Circulation inside the Cities center and thereby increase the air pollution inside.
4. Traffic congestion for vehicles increase the Air pollutants with high rates of Greenhouse gases caused from the incomplete combustion of vehicle exhaust gases, which in turn affect air quality and public health and the Ecological footprint in the end.

Not only this but also led to increase the Temperature inside the centers of those cities known as the Urban heat island effect²

¹ . Joe Ravetz, "Integrated Assessment for Sustainability appraisal in cities and regions", Elsevier, Environmental Impact Assessment Review, Vol. (20) 2000. P.(31-64).

² . "An urban heat island (UHI) is a metropolitan area which is significantly warmer than its surrounding rural areas. The temperature difference usually is larger at night than during the day, and is most apparent when winds are weak. Seasonally, UHI larger in winter than in summer. The main cause of the urban heat island is modification of the land surface by urban development; waste heat generated by energy usage is a secondary contributor. As population centers grow they tend to modify a greater and greater area of land and have a corresponding increase in average temperature. The lesser-used term heat island refers to any area, populated or not, which is consistently hotter than the surrounding area"- *Glossary of Meteorology (2009)*. "

2. **Increase the green areas** not only on the roofs of buildings, but also integrating the architecture building/ masses with nature in order to increase the opportunity of creating more /extended open areas next to or above The buildings which increases the chances of social interactivity in this spaces. (see figures 14, 15)
3. **Sharing roads** that allows having multi uses activities in the same space but not at the same time. (Those roads used for vehicles and social activities) and this idea start recently especially in old cities, which were not designed to accommodate various activities such as many European countries or have little Land Areas as Japan. (see figures 16, 17)
4. Including the **use of certain finishing materials** for the public open spaces to prevent the increase of the heat exchange or change the nature of the ecosystem as an restrictive condition to have the license (construction permission).



Figures 14, 15: samples of roof gardens and interaction between architecture and nature. left side Chicago City Hall Green Roof. Right side urban Development Tokyo, Japan



Figures 16, 17: The Sharing Roads that allows to have multi uses activities in the same space (vehicles road , cafe , play yard)but not at the same time except in some places not used by children.

6.1.3.2 New roles caused by the global changing in economic concepts:

The strength effects of the economics on the built environment was the main cause of the current urban spatial structure of the centers of great cities, the first decades of 20s century seen the spread of the concepts of world free trade, Capitalism, as a part of the globalization phenomenon, the impacts on the great cities centers were remarkable, CBD with its high rise buildings and skyscrapers providing headquarters for international corporations financial firms, became a common functional zone in the great cities centers, the great numbers of employees and customers daily motion to the city center emerging variant daily activates which mostly takes place in the public spaces.

The public spaces of the great cities centers became logistic nodes acting new urban roles and functions.

Nodes where pedestrians are being collected and distributed to different destinations within the city center or its borders by using Entrances and exits of main public underground transports networks, The main train station or to be linked to it Main bus stations, which are good connected to the public spaces, these nodes providing the common urban roles of the public spaces besides its new role, the common roles were appropriated to the new fast rhythm, the public spaces became more complicated and contains some specified spaces inside the main public spaces, those new specified spaces usually private but their exists help the main public space to act its new role as a logistic node besides its original urban roles.

6.1.3.3 New roles caused by the global changing in the social cultural visions:

The global social changes which affected the great cities citizens in the last few decades were mainly caused as results of the new era of advanced communication, the widely use of internet, the spread of satellite channels even for development poor solidities, emerged new roles of public spaces, the image of the ideal welfare community in the west world with the outdoor social life, street festivals, the national events...etc were exported to the citizens of great cities all over the world.

It's usual to see outdoor social life in the city centers public spaces in the rabid developed countries like China, India for example. These new social changes emphasize the importance of public spaces and will affect the future plans of the public spaces within great cities centers.

6.2 The new characteristics of the great cities public spaces which will have impacts on the future plans of the great cities centers:

1. The future public spaces will acting new urban roles beside its original roles, these new urban roles include social, cultural, economical functions.
2. These public spaces will be temporarily expandable spaces in horizontally way to absorb the huge agglomerations of people in the national events, festivals, which will affects the future design of those spaces and the surrounding pavements, streets to be flexible to meet the multi-functions uses.
3. Urban public spaces with variant roles, functions, activities, each one has its requirements which may be differs according to each case, which mean the needing of new urban solutions enable those spaces to act there original roles beside the opportunity to the new roles to have a place.
4. The future public spaces will have a high economical added-value according to the possibility of having Regional planning and architecture, which aims to create more public open spaces and green areas in minor private spaces supports the urban roles of the main public space, on the other hand, the land value of great cities centers are the highest among the rest of the city which need more studies to make the most possible benefits of those spaces in order to encourage the local governments to look for increasing the areas of public spaces in future plans.
5. **The Greenways and open spaces hubs**, which seeks to create and well distribute more open spaces and green areas/ gardens in many areas in existing cities that reduce pollution and the heat produced as a result of the administrative and business Activities within the city center.
5. The future public spaces will be complicated spaces, consists of minor spaces within the main space which consider being a hub contains many destinations for the pedestrians of the city center, with smart design to meet the needs of the multi-roles.
6. Innovated urban architecture designs to face the future challenges of the effects of the advanced communications technology, to be more attractable spaces notably for youth generations.
7. The public spaces will be the home of new construction technologies to meet the need of more spaces for the new roles, in vertical way above and under the ground.
8. Green, sustainable public spaces supports the nature in cities, using the common and the latest technologies to be friendly to the nature.

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