



Land Uses in the Cities of Qantara: A Study in Urban Geography

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ABSTRACT

The research deals with the study of land uses in the two cities of Qantara by studying the relative distribution of urbanly exploited lands and vacant lands in the two cities. In addition, it explores the relative distribution of urbanly exploited lands according to the type of use in the two cities as well as land ownership in the two cities of Qantara. Moreover, the residential use area came in first place and the industrial use in second place in the city of Qantara Sharq. The residential use area also came in first place in Qantara Gharb and in second place came the educational use.

Keywords: Land uses, Urbanization, urban development, Al-Qantara Sharq city, Al-Qantara Gharb city.

Introduction

The geographer is usually interested in studying land uses and plotting this on maps to determine the disparities between spatial activities within the city. Land use is the spatial expression of the city's functions. Several attempts have appeared to develop a unified classification for land uses, and among these classifications is Bartholomew's 1955 classification, which was adopted in his study. For the uses of the land on the basis of dividing the land into built-up blocks and vacant lands, then dividing the built-up block into private use areas and public and semi-public use areas, then dividing these sections into sub-classifications, and from here the land was divided into two parts: urban exploited lands -

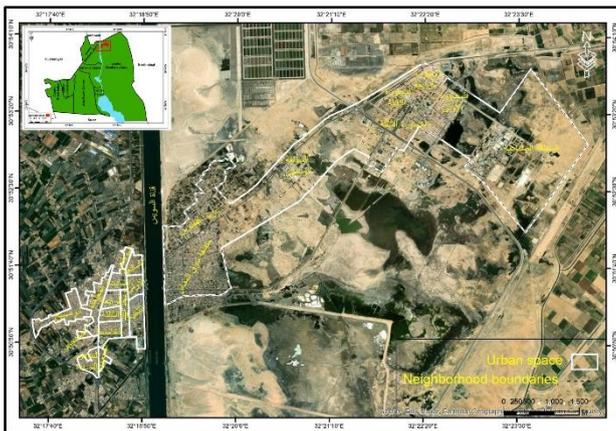
urban unexploited lands. This will be explained in detail, in addition to land ownership in the two cities.

1) Study Area:

The city of Qantara is located east-northwest of the center of Qantara Sharq, and is 26 km away from the city of Ismailia, as the Suez Canal divides the city into two parts: the old city (the original) - the urban extension represents the second part - and it has been called the new Qantara Sharq or the new city, and in fact it is an urban expansion that can be considered a new neighborhood, The city of Qantara is located west-northeast of the center of Qantara Gharb, and is 23 km away from the city of Ismailia. The

location of the city of Qantara Gharb in relation to the governorate has resulted in it becoming one of the gateway cities as it is a gateway to the central region of the Suez Canal (Ismailia Governorate), and it is 12 km away from the northern border of the governorate. As for the city of Qantara Sharq, it is 15 km away, and Qantara East is 80 km away from the southern border of Ismailia Governorate, and the city of Qantara Gharb is 67 km away.

The city of Qantara Sharq is located east between longitudes 0 20 320 and 30 23 320 east and between latitudes 50 50 300 and 20 53 300 north. The city of Qantara Gharb is located west at longitudes 40 17 320 and 40 18 320 east and between latitudes 20 50. 300 and 0 52-300 north, as shown in Figure (1).



Source: Worked by the researcher based on the Information and Decision Support Center in the Qantara City Council.

Figure 1. Administrative division of the cities of Qantara 2020

2) Objectives of the study:

- Determining land use patterns in the cities of Qantara.
- Highlighting the importance of the main function of each city.
- Determine the types of land ownership within each city.

3) Previous studies:

The city of Qantara Sharq did not receive an independent geographical study, and the student relied on some of the previous geographical

studies, including: studies that dealt with the subject of the study and studies that dealt with the city within the framework of the Suez Canal Region, which are as follows:

1-Studies specific to the subject of the study:

A - Jihan Abdel Moneim Ali Abdel Gawad, entitled Ain Shams Neighborhood, a study in urban geography, which was concerned with studying the astronomical and geographical location of the neighborhood, and the factors, both natural and human, affecting urban growth and studying the urban areas of the neighborhood and the distribution of its population, 2013.

B- Muhammad Ali Muhammad Abd al-Rahim, entitled The City of Dayrut: A Study in Urban Geography Using Geographic Information Systems. It was concerned with studying the natural characteristics of the city of Dayrut, then the city's origins, development, and functional structure, with an interest in studying the population, monitoring the city's problems, and proposing some solutions, 2014.

C- Medhat Saleh Abdel Halim Muhammad, entitled Sustainable urban development in the city of Mahalla al-Kubra using geographic information systems and remote sensing, where the study explained the morphological developments of the city of Mahalla al-Kubra, the natural factors affecting sustainable urban development, the role of the population in the sustainable development of the city, land uses, and the problems it suffers from. The city and its proposed solutions, 2020.

D-Howaida Hamed Ahmed Mahmoud, entitled The City of Tahta, A Study in Urban Geography Using Geographic Information Systems, which focused on studying the location and spatial relationships of the city of Tahta, the historical and urban development of the city, the composition of its population, and the uses of land in the city of Tahta, then monitoring the problems that the city suffers from, and estimating the future needs of the city, 2019.

2- Studies within the Suez Canal Region:

A - Ahmed Mohamed Ragab Ibrahim, entitled Growth and Urban Development of Port Said Governorate as a Model for Cities in Congested Locations. It focused on studying the city, the Suez Canal, its location in the global navigation network, the city's entrances and crossings, and arterial roads, in addition to economic growth, the development of land uses, the development of population dimensions, urban growth, and the quality of life therein, 2010.

B- Warda Ahmed Al-Sayed, entitled Development in Port Said Governorate, a geographical study, which dealt with natural, human and social factors in addition to agricultural and industrial development, livestock, population and tourism development, 2010.

C-Muhammad Mustafa Jamal Shata, entitled Atlas of Development in Ismailia Governorate, concerned with studying the natural and human geographical components of the governorate and its historical and cultural heritage and studying the components of tourism, economic and infrastructure development while developing a future map for the governorate, 2014.

D-Warda Ahmed Al-Sayed, entitled The City of Ismailia, a study in urban geography, dealt with the location, location and spatial relations of the city, the origin and development of the city, urban growth and its population, then land uses, infrastructure, and urban planning of the city, 2014.

E-Marwa Abdel Fattah Siddiq, entitled Urban Growth and Its Impact on Land Use Patterns in the City of Suez, focused on studying the changes that occurred in the urban mass and the use of land there as a result of historical development in addition to studying the population and functions performed by the city, 2016.

4) Study curricula and methods:

The method is the path or method that the researcher takes to address the research topics in

order to reach his desired goal through a set of pre-determined steps and scientific methods. Urban geography topics require the intersection of many curricula, paths and approaches and the use of many processing methods that are needed by the aspects of the study depending on the nature of the data and the scientific material available. In accordance with the objectives set by the study and the questions and hypotheses it raised, and according to the diversity of research and study topics in the field of urban growth of cities, this study adopted a number of approaches and used some methods and approaches within the study paths in urban geography, each of which serves A purpose in the study the subject of study and research as follows:

A) Study curricula:

1-Historical approach: This approach was used to study the origin of the city and monitor its historical, administrative and urban development according to a set of maps for varying years.

2- The regional approach: This approach is used to highlight the geographical character of the city, especially since it is among the cities of the Suez Canal region.

3- The descriptive analytical approach: This approach was used to study the form of the urban plan and to study the urban structure and use of land in the city.

b) Study methods:

1- Quantitative and statistical method: to create statistical tables, draw graphs, and create some equations through the EXCELL2010 program.

2- Geographic Information Systems Method: By creating a geographic database for the cities of El Qantara through inputs from maps and information using the ARC GIS V10.5 program to draw maps and analyze them spatially, and the ENVY 5.3 program to correct satellite visualizations, improve and classify these visualizations, then monitor the change and transform. The results of classifications are converted to Raster to Vector to achieve the

possibility of spatial distinction between urban and non-urban spaces.

3- Field study method: through which exploratory visits and field surveys were carried out, as well as personal interviews.

5) Study sources:

- A database of digital maps from the Urban Planning Information and Departments Center, Qantara City Council and the Ismailia Governorate Building, in addition to data from the Central Authority.

- The field study that confirmed the official data and enabled the researcher to collect data and photos for the field study.

- Personal interviews with officials in the Ismailia Governorate building and the two city councils.

- Using the ARC GIS program to create the spatial database for the cities of El Qantara.

The research studied the following:

First: The relative distribution of urban exploited lands and vacant lands in the cities of Qantara.

Second: The relative distribution of urban exploited lands according to the type of use in the two cities.

Third: Results of the study.

First: The relative distribution of urban exploited lands and vacant lands in the cities of Qantara:

The area of the city of Qantara Sharq was 1786.2 acres, of which 99.87 acres were lands within the Suez Canal campus, and the area of the city of Qantara Gharb was 377.6 acres. The area of urban exploited lands in the city of Qantara Sharq was 596 acres, at a rate of 33.36%, and in the city of

Qantara Gharb, it was an area of 211.3 acres, at a rate of 56% for the year 2019, represented by: All different types of uses, between residential, residential, commercial, educational, health...etc. As for the area of urban unexploited land, which includes vacant lands, agricultural lands, wastelands, private uses, and cemeteries...etc, its area reached 1090.33 acres in the city of Qantara Sharq, at a rate of 66.64%, and constituted an area of 166.3%. acres, at a rate of 44.07% in the city of Qantara Gharb¹

Second: The relative distribution of urban exploited lands according to type of use in the two cities:

The uses of land are diverse in the cities of Qantara, where the study of land uses is the basic foundation of urban planning, and it is the final result of achieving the optimal use of the land in order to achieve Development², From studying Table (1 and 2), which shows the numerical and relative distribution of land use areas and their descending order in terms of type of use in the two cities, and Figure (2).

1- Residential use and its characteristics:

Residential land use, with its various characteristics, occupies most parts of the city, as it is considered one of the most important uses given that the primary function of the city is housing, which is shown in Table (3) and Figures (3 and 4). It is clear that residential use in the cities of Qantara occupies first place, with an area of 323.23. Acres, at a rate of 18.1%, which is approximately one-third of the total area of the city of Qantara Sharq, and in the city of Qantara, it was 170.77 acres, or 45.22%, which is more than two-fifths of the total area of the city, which reflects the dominance of the residential use of the cities of Qantara over the land uses within the two cities.

¹) Information and Decision Support Center in Ismailia Governorate 2019, measurements of the land use map prepared by the student for the two cities 2019.

²) Abdullah bin Saad Al-Khalidi, 2005, Applied geographical method in urban planning, Journal of Gulf and Arabian Peninsula Studies, Kuwait University, Issue 119, p. 53.

Table 1. Percentage distribution of land use areas in the city of Qantara Sharq in 2019.

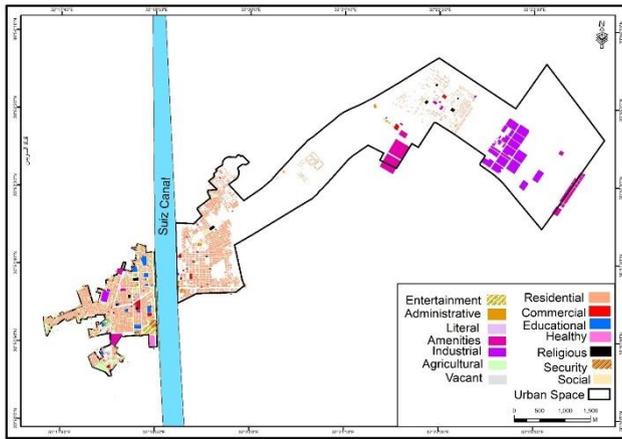
The use	Area in acres	Percentage% of the total area of the city
Residential	323.23	18.1
Commercial (C.B.D)	8.63	0.48
educational	26.42	1.48
healthy	5.83	0.33
religious	7.38	0.41
Security	4.63	0.26
social	3.91	0.22
Entertainment	22.92	1.28
Administrative	24.58	1.38
Literal	0.19	0.01
industrial	116.10	6.50
agricultural	0.70	0.04
Infrastructure	51.41	2.88
Total	595.93	33.37
Vacant lands	697.87	37.53
Agricultural lands	4.36	0.1
Roads and urban spaces	487.94	29
Total	1786.2	100

Source: Information and Decision Support Center in Ismailia Governorate 2019, measurements of the land use map prepared by the student for the two cities in 2019, and the data was updated through the field study and satellite images of Google Earth 2019, and the percentages from the researcher's calculation using Arc gis.

Table 2. Percentage distribution of land use areas in the city of Qantara Gharb in 2019.

The use	Area in acres	Percentage% of the total area of the city
Residential	170.77	45.22
Commercial (C.B.D)	4.12	1.09
educational	14.88	3.94
healthy	1.43	0.38
religious	4.09	1.08
Security	0.43	0.11
social	0.51	0.14
Entertainment	3.01	0.8
Administrative	1.24	0.33
Literal	1.13	0.3
industrial	6.97	1.85
agricultural	1.48	0.70
Infrastructure	1.22	0.57
Total	211.28	56.51
Vacant lands	70.38	18.03
Agricultural lands	3.26	0.9
Roads and urban spaces	92.77	24.56
Total	377.69	100

Source: Information and Decision Support Center in Ismailia Governorate 2019, measurements of the land use map prepared by the student for the two cities in 2019, and the data was updated through the field study and satellite images of Google Earth 2019, and the percentages from the researcher's calculation using Arc gis.



Source: Worked by the researcher, based on Tables 1 and 2, the field study, and satellite images for Google Earth 2019.

Figure 2. Land use in the cities of Qantara, 2019.

This use is widespread in most of the two cities. It is found in most parts of the old block in the city of Qantara Sharq, and also in the new block, such as Al-Taamir housing, Al-Tawfiq housing, in the central area, and shelter housing. It is found in Qantara Gharb, in most of the city’s neighborhoods, and in the area of Abu Subih, Al-Muhata, Abu Rashid, and the old Al-Banahwa. We will discuss the characteristics of these. Housing in each city.

A- Mixed-use housing:

The mixed residential use is represented by commercial residential, administrative residential, service, craft and industrial, where, as we mentioned in Table (2), the residential use area in the city of Qantara Sharq occupied 323.23 acres of the total city area, with an area of 251.24 acres and a percentage of 77.73 for residential only of the total city uses. With an area of 32.33 acres for commercial residential use, at a rate of 10%, the area for administrative residential use was 15.3 acres, at a rate of 4.73%, and the area for service residential use in the city of Qantara Sharq rose to 19.5 acres, at a rate of 6.03%. As for craft use, its area was 2 acres, at a small rate of 0.62%. Industrial residential use: 2.87 acres, 0.89% of the total mixed residential uses in the city of Qantara Sharq, While the area for residential use in the city of Qantara West, as we mentioned in the table (uses), occupied an area of 170.77 acres, of which 130.87 acres was for residential use only, at a rate

of 76.64% of the total use, then the area for commercial residential use reached 20.9 acres, at a rate of 12.24%, and the area for administrative use was 9.8 acres. By 5.74%, then the area for residential service use in the city of West Qantara fell to 5 acres, representing a rate of 2.93%. As for the area for craft residential use, its area came to 2 acres, by 1.17%, and to an area of 2.2 acres for industrial residential use, by 1.29%, which is shown in Table (3) and Figure (3 and 4) and pictures (1 and 2).

Table 3. Numerical and relative distribution of residential and mixed residential use in the cities of Qantara 2019.

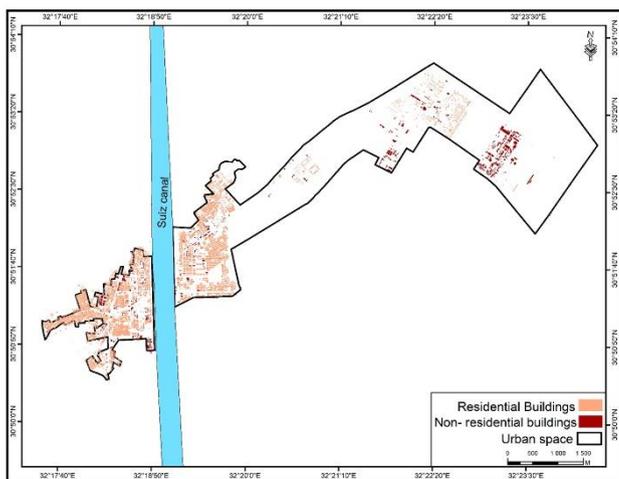
Type of use		Area in acres	Percentage%
Residential use		251.24	77.72
Qantara Sharq	Residential commercial	32.33	10
	Administrative residential	15.3	4.73
	Service residential	19.5	6.03
	Literal residential	2	0.62
	Industrial residential	2.87	0.89
	Total	323.23	100
Qantara Gharb	Residential use	130.87	76.64
	residential commercial	20.9	12.24
	Administrative residential	9.8	5.74
	Service residential	5	2.93
	Literal residential	2	1.17
	Industrial residential	2.2	1.29
	Total	177.77	100

Source: Information and Decision Support Center in Ismailia Governorate 2019, measurements of the land use map prepared by the student for the two cities in 2019, and the data was updated through the field study and satellite images of Google Earth 2019, and the percentages from the researcher’s calculation using Arc gis.

It is clear from Table (3), Figures (3) and Figures (1 and 2), that the percentage of residential use

came in first place in both cities, followed by the percentage of residential and commercial use in the two cities, due to the spread of the clothing, furnishings and ready-made fabrics sector in Qantara Gharb and the sale of food commodities, juices and shops. The supermarket in Qantara Sharq, then the percentage of administrative residential use differed in both cities, as it came in fourth place in the city of Qantara Sharq and in third place in the city of Qantara Gharb, which is generally represented by administrative housing buildings such as the city council, housing for officers and members of the army, and housing for railway workers.

Service use came in third place in the city of Qantara Sharq and in fourth place in Qantara Gharb, represented by social units, cultural houses and postal services. Residential craft use occupied the penultimate place in the two cities, such as car repair and maintenance kiosks and electric motors. Then residential and industrial use came in last place, with an almost equal percentage in the two cities. It is represented by the forges, blacksmithing and iron workshops.



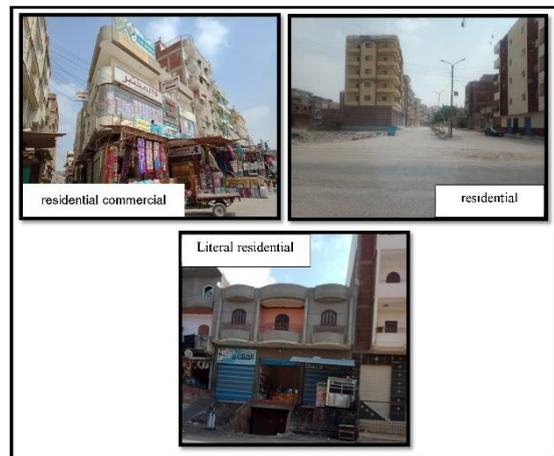
Source: Worked by the researcher based on Table (3), the field study, and satellite images of Google Earth 2019.

Figure 3. Residential and non-residential buildings in the cities of Qantara 2019.

B- Geographical distribution of deteriorating housing (slum areas) in the cities of Qantara:

These are random settlements within the cities of Qantara Sharq and Gharb, where the images of slum areas in the two cities vary between old,

deteriorating nucleuses, and rural enclaves such



Source: Field study, 2020.

Picture 1. Residential and mixed-use dwellings in the city of Qantara gharb, 2020.

as villages and estates inside the cordon, in addition to urban sprawl on agricultural lands, as is the case in the city of Qantara Gharb in particular, which suffers from this phenomenon. Like the rest of the Delta cities, in light of the absence of laws violating construction and the weakness of the penalty, as well as the nests and huts spread on the outskirts of the city, on canals, and railway buildings, which is shown in Table (4) and Figure (4).

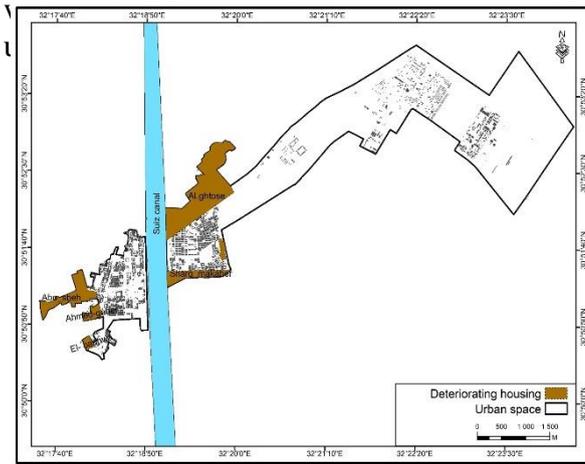
Table 4. inventory and classification of deteriorating housing in the cities of Qantara in 2019.

The city of Qantara Gharb		The city of Qantara Sharq	
Area (acres)	Area name	Area (acres)	Area name
70	Abo-sbeh	78	Elghtose
20	Ahmed gabbers	20	Sharq_elmkaber
12	ELbanhwa	8	Elmosla
102	Total	107	Total

Source: Planning and Follow-up Department of Qantara City Council 2019.

Table (4) and Figure (4) show that in the city of Qantara Sharq, there are 3 areas with deteriorating housing (slums), which are Izbat Al-Ghtous, on an area of 78 acres, the area east of the cemeteries, on an area of 12 acres, and Izbat Al-Mawsala, on 8 acres, for a total of 107 acres of

the total area of the city of Qantara Sharq. There are also 3 deteriorated residential areas in the city of Qantara Gharb, which are Ezbet Abu Sobeih, with an area of 70 acres, Ezbet Ahmed Jaber, with an area of 20 acres, and Ezbet Al-Banahwa Al-Jadidah, with an area of 12 acres, with a total of 102 acres, An acre of the total area of the city of Qantara Gharb, which is housing that was built by the residents without approved land division and



Source: From the researcher’s work based on Table (4) and the 2019 field study.

Figure 4. Deteriorating housing in the cities of Qantara, 2019.

The factors that led to the emergence of deteriorating housing (slum areas) in the cities of Qantara can be identified as follows::

- Cheap prices of agricultural and vacant lands compared to the prices of building lands within the city.
- Unbalanced urban growth as a result of high rates of rural migration, especially from the villages of Ismailia Governorate, in addition to the natural increase in the city’s population.
- The inability of public housing (for those with limited income) to accommodate those displaced to the city from the neighboring countryside and their tendency to establish slums.
- The absence of real supervision by the city’s

local development unit, which is responsible for the urban movement and its growth axes in the city.

- The presence of relatives or family in slum areas, which calls for settlement there.
- The desire of rural migrants to live in transitional areas between the countryside and the city.
- Deterioration of old parts as a result of housing pressures on them and the lack of alternatives.
- Weakness of the penalty enacted by the law for acts violating construction, as all of them were included in the department of misdemeanors punishable by imprisonment and a fine, and did not reach the level of a felony.

- The drinking water company and the electricity police were lax when encroaching on these facilities passing through informal areas, which encouraged the residents of these areas to pursue random urban expansion based on the theft of electricity and illegal water connections.

2-Commercial use (trade and business area C.B.D³):

Commercial activity is the main market for buying and selling centers adjacent to the city, and the city center is its commercial heart, and commercial uses from the city capture the best and best locations in it, which achieve the greatest amount of ease of access, as the central business district is the organized heart around which the rest of the city is gathered. Parts of the city are among the most important parts of the city. There are two forms of commercial use in the cities of Qantara:

- First: independent shops.
- Second: The presence of these shops as land use within residential buildings.

From studying Table (1 and 2) and Figure (2), which shows the use of land in the cities of Qantara, the area for commercial use in the city

³) C.B.D = Central Business District

of Qantara Sharq reached 8.63 acres of the total area of the city, or 0.48%. While the percentage of commercial use in the city of Qantara Gharb reached 4.12 acres of the total area of the study area, a rate higher than its counterpart in the east, 1.09%. This difference is due to the fact that the city of Qantara Gharb is famous for its extensive commercial activity in many areas than its counterpart in the east, and that many of the residents The city of Qantara Sharq They trade and buy many of their needs from the city of Qantara Gharb, which is famous for trading ready-made clothes, furniture, shoes, and some medical clinics and famous doctors in the city of Qantara Gharb from the Sharq And some crafts, office work, printing and photography work, in addition to buying fish and seafood of various kinds in the city of Qantara Gharb. It is worth noting that this type of use in general, there is a large percentage of it mixed with residential uses, and a large part of it occupies the ground floor, and this pattern is clearly found in the city. Qantara Gharb especially.

The central business district in the city of Qantara can be identified east of Ezbet Al-Mawasala on Suez Street and next to the Suez Canal campus, all the way to Ezbet Al-Ghtous, where there are some vegetable sales rings and shops selling mobile phones and charging cards, as shown in picture (3), and some shops selling natural juices (press presses), cafes, and some medical clinics. There are some that are independent stores and some that are connected to a residential building. As for the central business district in the city of Qantara Gharb it is located in the downtown area, west of the Suez Canal and Saidia Canal, and extends from Al-Gish Street in the north to Tahrir Street in the south.

From Suez Street in the east to Gamal Abdel Nasser Street in the west, these streets share a main feature in that most of the buildings occupied by commercial uses are mixed with residential, and a large part of them occupies the ground floor, in addition to some buildings that are characterized by the presence of a basement used as warehouses for commercial stores, where they are concentrated. It contains wholesale and

retail stores and stores selling clothes, shoes, and bridal furnishings, as is clear from picture (4), where all building facades are used in this area in the case of buildings that overlook more than one street and corner. In addition, this area is characterized by functional specialization due to the presence of many Shops with unified commercial activity are next to each other, and this appeared on Army Street, Al-Dustour Street, and Tahrir Street in the second neighborhood Which is distinguished by its specialization in ready-made clothing for men and women and the sale of furniture and textiles, in addition to some fabric shops scattered in this street. As for the jewelry and gold shops, they are located next to each other on Al-Sagha Street, while Al-Dustour Street is also characterized by a daily fish and vegetable sales ring, in addition to herbalist shops. Grocery stores, supermarkets, and a number of shoe repair workshops.

The business district in the cities of Qantara is considered one of the areas of old urban cores, with narrow streets. The buildings overlooking the Suez Canal and the train station are distinguished by the use of all floors in them, as they are dominated by medical use, represented by medical clinics and analysis laboratories. It must be noted that the central business district in the cities of Qantara is distinguished by Due to the rise in land prices, where the square meter in the city of Qantara Sharq ranges from 900-1430 pounds per square meter, and in the city of Qantara Gharb from 500-1500 pounds per square meter.

It is also worth noting that the city of Qantara Sharq has a weekly market, which is the Wednesday market of every week, where interaction takes place between the city and each other and its neighboring villages. Due to the lack of a designated place for it, many of the city's streets turn into commercial markets, especially Al-Jumhuriya Street. Also, the city of Qantara Gharb has a market. Thursday, which takes place in the exchange of all goods, food, and livestock trade between it and the surrounding backland of estates and villages. In addition, the city of Qantara Sharq is distinguished by the presence of

a daily market for all residents and residents of neighboring villages, unlike the city of Qantara Gharb, which has a market one day a week.



Source: Field study 2020.

Plate 3. Commercial use in the old block in the city of Qantara sharq, 2020.

3-Educational use:

It means the areas of land allocated for educational activities and services, such as schools, institutes and universities. The area of educational use in the city of Qantara Sharq reached 26.42 acres, at a rate of 1.48%, which is shown in Table (1 and 2) and Figure (2), while the area of this use reached 14.88 acres in the city of Qantara Gharb. The percentage is higher than its counterpart in the East, 3.94%. This difference is due to the increase in the number of students arriving from outside and within the city, which in turn led to an increase in the density of the number of educational buildings, and the two cities include.

4-Health use:

This means hospitals, public and private health facilities, clinics and medical pharmacies. The health use area in the city of Qantara Sharq increased by 5.83 acres of the total area of the city by 0.33%, and Qantara Gharb came with an area of 1.43 acres and by 0.38%, which is shown in Table (1 and 2) and Figure (2). This difference is due to the presence of a larger number of health units in the city of Qantara Sharq, both in the old unplanned block, which was the residence of workers digging the Suez Canal and the railway, where the health clinic is located, and the new planned city with all its service units, and the larger area of the city of Qantara Sharq than its counterpart in the west, thus increasing the

density of health buildings with it.

5- Religious use:

The area of religious use in the city of Qantara Sharq reached 7.38 acres, or a rate of 0.41%, in contrast to the city of Qantara Gharb, in which the area of the same use was 4.09 acres, or a rate of 1.08%, which is evident from Table (1 and 2) and Figure (2), where the increase in the area of religious use in the city of Qantara is East from its counterpart in the West indicates the presence of diversity in the religious composition of the city, especially Copts, whose density is higher in the city of Qantara Sharq than in the West. This is what was deduced from the field study of the two cities, where the Orthodox Church and the Anglican Church are located, in addition to the presence of mosques such as the Peace Mosque, the Great Mosque, and the Mosque of Repentance, which in turn led to an increase Density of the number of buildings and places of worship in the city.

6- Security use:

Camps and units of the armed forces, police departments, and units affiliated with the Ministry of Interior fall into this category of land use. Its area in the city of Qantara Sharq was 4.63 acres, or 0.26%, while Qantara Gharb had a small area of 0.43 acres, or 0.11%, as shown in Table (1 and 2). Figure (2), where the area of this use increases in the city of Qantara Sharq due to the sensitivity of the city's location on the Suez Canal on the one hand and North Sinai Governorate on the other hand, where the smuggling and terrorist operations that occur in Sinai and in this regard affect the movement of population delegations inside and outside the city and this is from the reality Field study of the city.

7- Social use:

It means civil and charitable associations, event houses, social affairs, and other such services. Table (1 and 2) and Figure (2) show that the area of this use in the city of Qantara in the east was 3.91 acres, or 0.22%, while the area in the west

decreased to 0.51 acres, or 0.14%. The high share of the city of Qantara Sharq in this use is due to the part of the new city that is planned to cover all the needs of the residents of the old and new city as well, in contrast to the city of Qantara Gharb, which has only the planned area, which is the Saba Mujawarat residential area, and the rest of the parts of the city are only random areas. It grew around the city and then merged with it, which causes great pressure on these services.

8- Recreational and cultural use:

This use includes ball fields, clubs, youth centers, and cultural palaces. The area of this use in the city of Qantara Sharq rose to 22.92 acres of the total area of the city, at a rate of 1.28%, while the area of this use was 3.01 acres, or a rate of 0.8%, in the west, as shown in Table (1 and 2) and Figure (2), The reason for the high rate of this use in the East is the presence of the Supreme Council of Antiquities, the Museum Store of Sinai Antiquities, and the Cultural Center, unlike the city of Qantara Gharb, where this use is limited to the Qantara Gharb Youth Center, a Culture House, and some green areas.

9- Administrative use:

It is the use of the city council or municipality, criminal courts, and prosecution offices. It is clear from Table (1 and 2), Figure (2) and Figure (5). The administrative use area in the city of Qantara Sharq reached 24.58 acres, at a rate of 1.38%, while in the city of Qantara Gharb, its area decreased to 1.24 acres, at a rate of 1.38%. 0.33%, and this difference is also due to the larger area of the city of Qantara Sharq in general, according to what was decided by the Permanent Committee for Approval of Urban Estates, that the total area of the city is 4239.28 acres, of which 1313 acres are regional services compared to the city of Qantara Gharb, whose total area according to what the committee decided is 980.1 acres, of which 15 acres regional services, There are a number of banks, such as the Bank of Egypt and the Development and Agricultural Credit Bank, other than Qantara Gharb, which has only the Bank of Alexandria on Army Street, in addition

to the Executive Authority for the Reconstruction of Sinai, the Canal Cities in Qantara Sharq, the Water Resources and Irrigation Sector in North Sinai, the Qantara Sharq Labor Office, the Arab Contractors, the National Democratic Party, and other administrative uses. In the city.



Source: Field study 2020.

Plate 5. Administrative use in the cities of Qantara 2020.

10- Literal use:

This category includes the uses of craft workshops. Table (1 and 2) and Figure (2) show that the area of this use in the city of Qantara in the west was higher than its counterpart in the east, where it reached 1.13 acres, or 0.3%, while its area in the east was 0.19 acres, or 0.01%. This is due to This noticeable difference is due to the large market in the city of Qantara Gharb, as it is considered a daily market, in addition to the fact that there are some residential buildings for the residents that operate on the ground floor as craft workshops for maintaining cars and home appliances, and some blacksmithing, sheet metal work, and other such crafts.

11- Industrial use:

This use includes the industrial zone in the cities of Qantara, as is evident from Table (1 and 2), Figure (2) and Image (6). The area of this use in the city of Qantara Sharq increased to 116.10 acres, at a rate of 6.50%. As for the city of Qantara Gharb, the area of this use decreased to 6.97 acres, at a rate of 6.50%. 1.85%, which is not a small area compared to the total number of uses in the city of Qantara Gharb, But in general, the higher area of industrial use in the city of Qantara East than its counterpart in the west is due to the presence of the industrial zone in the city in a planned manner connected to infrastructure facilities of water, sewage and electricity, with an

area of 910 acres divided into 6 phases of a service area, the most famous of which are the wheat silos in Qantara Sharq and some food and juice factories. Quarries and marble manufacturing. As for the city of Qantara Gharb, there is the Abu Khalifa industrial zone, where the Kapsi paint factory and the ice factory are located.



Source: Field study 2020.

Plate 6. Industrial use in the cities of Qantara, 2020.

12- Infrastructure:

It means infrastructure services, such as drinking water, sewage, electricity, communications centers, and other such uses. As can be seen from Table (1 and 2), Figure (2), and Figure (7), the area of basic facilities uses in the city of Qantara in the East reached 51.41 acres, or 2.88%, and in the West it came with an area 1.22 acres and a percentage of 0.57%, as this rise in the east is attributed to the original planning of the city, whether in the old city, where it was a residence for French engineers during the digging of the Suez Canal and the construction of the railway, and therefore we find it well connected to the new city with the four residential neighborhoods area, where the Qantara Communications Center is located. East, the governorate parking lot, the central Qantara Sharq, the city council garage, the Meteorological Authority, and other such uses.

13- Agricultural use:

This use falls into the category of agricultural lands and poultry farms, as it is clear from Table (1 and 2) and Figure (2), that the city of Qantara West's share of this use increased compared to the city of Qantara Sharq, where its area reached 1.48 acres, or 0.70%, while its area in the east decreased to 0.70 acres, with a very small percentage of 0.04%, and this is due to the fertile soil of the city of Qantara Sharq in general, as it

is ancient Nile deposits and is within the fertile delta cities where some crops such as tomatoes, eggplants, wheat, poultry farming, and fertilizer cultivation are grown.



Source: Field study 2020.

Plate 7. Sanitation facility in the cities of Qantara, 2020.

Third: Results of the study:

- The area of the city of Qantara Sharq was 1786.2 acres, and the area of the city of Qantara Gharb was 377.6 acres.
- The area of urban exploited land in the city of Qantara Sharq constituted 596 acres, and in the city of Qantara Gharb it constituted an area of 211.3 acres.
- The area of urban unused land in the city of Qantara Sharq reached 1,190.33 acres, and in the city of Qantara Gharb it constituted an area of 166.3 acres.
- The residential use area came in first place and the industrial use in second place in the city of Qantara Sharq. The residential use area also came in first place in Qantara Gharb and in second place came the educational use.

Fourth: Recommendations:

- Reconsidering the current building laws with the aim of trying to reach an idea that fulfills the requirements of a distinct urban environment with cultural and aesthetic values, while emphasizing the importance of having a distinctive architectural character that is compatible with the cultural identity of each of the existing cities.
- Develop programs and plans for the development, upgrading and development of the urban fabric in the two cities so that they are compatible with all available capabilities.
- The need for urban development plans to focus on visual study in terms of working to achieve visual enrichment of all distinct architectural

elements that can be perceived as an attempt to improve the urban environment of the two cities.

- Supporting administrative and financial decentralization and activating the role of popular participation in the development planning process.
- Encouraging more new investments and increasing the participation of the private sector and civil society.

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